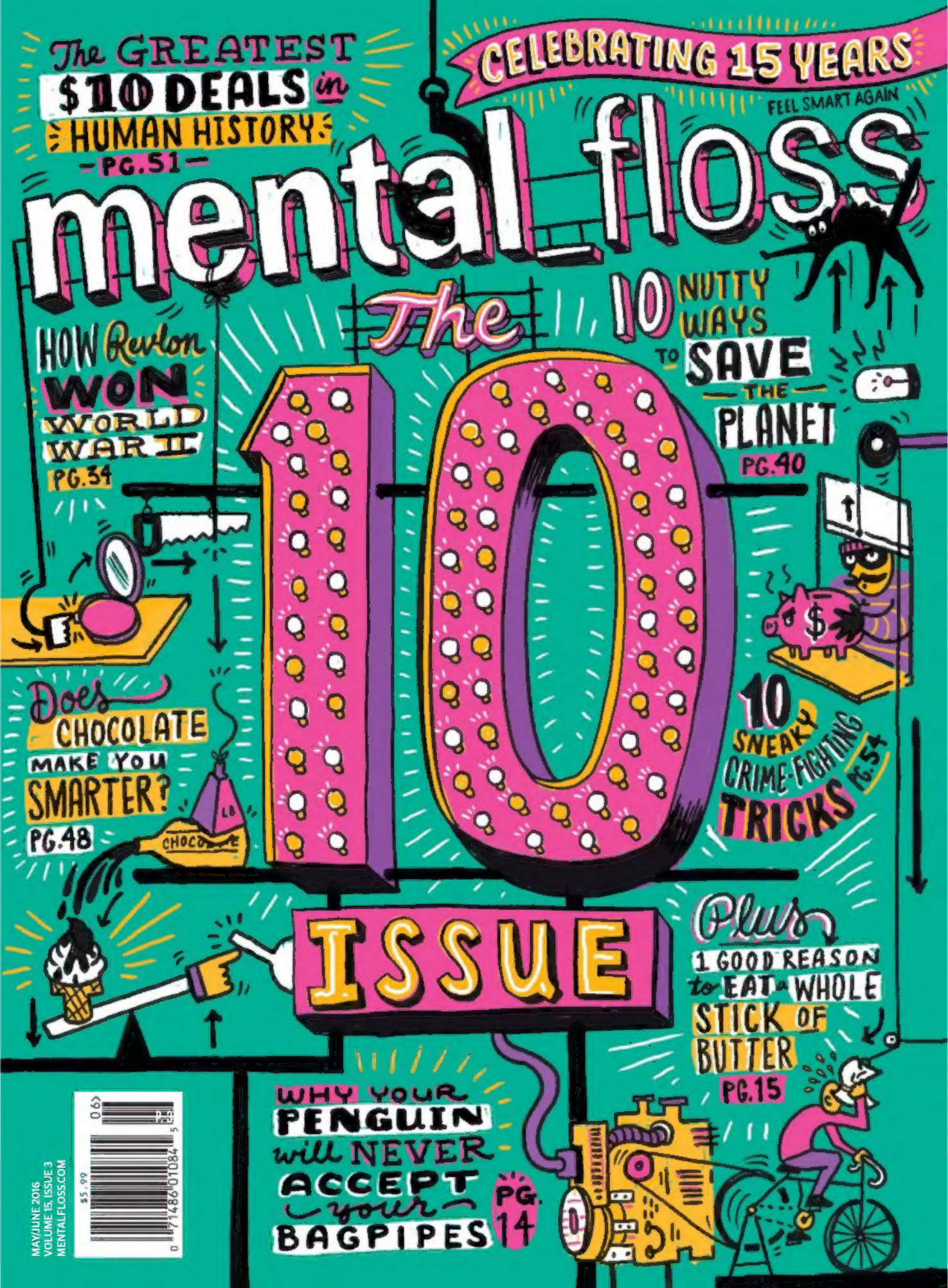
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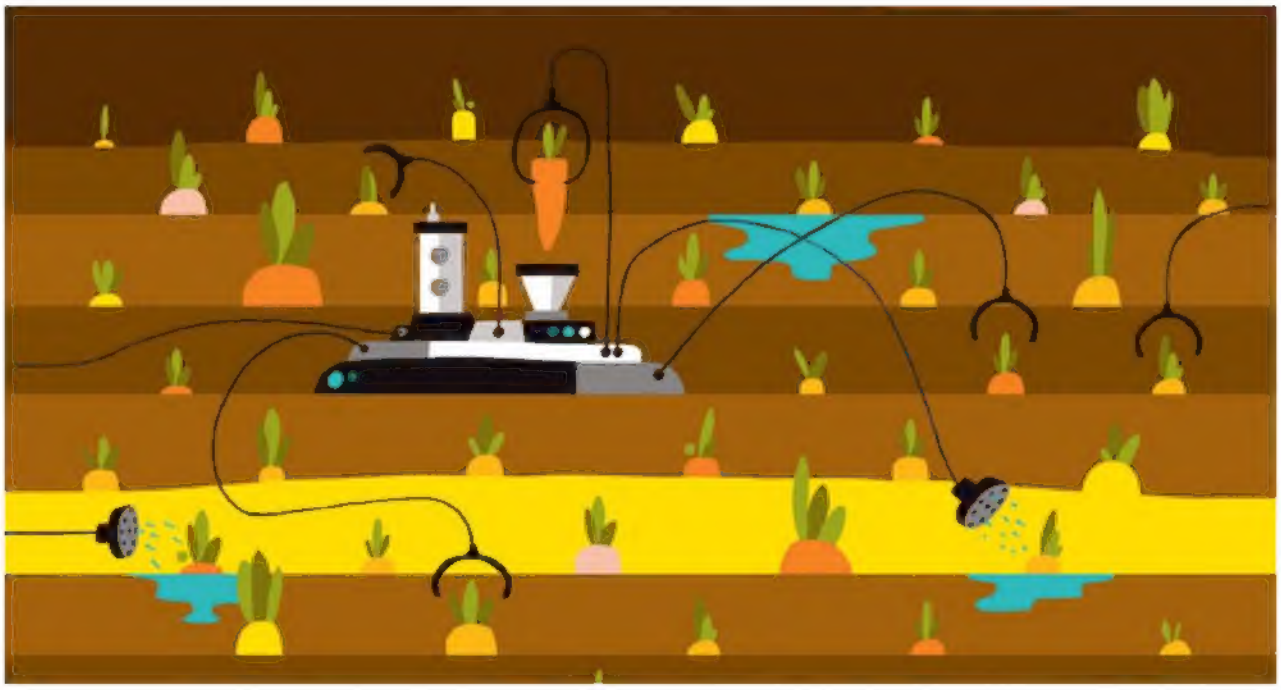

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ISTOCK (MAN BUN, BIKE), ALAMY (PENGUIN, PEYTON MANNING), CARY NORTON (CHANG), KATIE CAREY (BIRD), BYRON EGGENSCHWILER (SUFFRAGETTES), LIZ BARCLAY (BBQ)

mental_floss

2016 PLATYPUS AWARDS

SUBMIT BY JUNE 1

WHO'S YOUR *Favorite* TEACHER?

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WRITE

Tell us about a teacher doing incredible things in the classroom.

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Send your nomination to letters@mentalfloss.com using the subject line "2016 Platypus Awards."

READ

Check out who made the cut in the September/October 2016 issue.

HURRY—NOMINATIONS ARE DUE JUNE 1!

HOW DO YOU DO THIS AGAIN?

Turns out, I'm a little rusty at this editor's letter thing. I'm sitting here, filling in for Jessanne while she's on maternity leave, and all I can think of is that old Woody Allen joke: "I wish I had some kind of affirmative message to leave you with. Would you take two negative messages?"

So, poor reader, that's what you're getting. In addition to this incredible issue, brimming with impossibly good stories, you're also getting a bonus list of 10 ways this letter almost started. Here goes!

1 Way back in 2001, when we decided to do our very first 10 Issue, we recruited a story on 10 Steps to Appreciating Opera. The piece was a mess. It kept getting passed from editor to editor (all two of us), and when we finally owned up to the fact that we'd have to rewrite the thing from scratch, well, that's when we came up with a phrase. For years, if you had to "go opera" on a story, it meant you had a very long night ahead of you.

2 As a lapsed vegetarian, I have little interest in hearing about how the sausage is made. But a heaping plate of hoosh? That's a different story (p. 15).

3 I don't mean to brag, but I know a little something about martial arts (p. 24). When I was 6, my class of white belts took a field trip to see *The Karate Kid* in the theater. In our uniforms.

4 It's unclear why you'd want to meddle with the design of the cat flap. The device has worked well ever since Isaac Newton supposedly dreamed it up in the 1600s. So it was surprising when Lucas Reilly found a patent for improving the device—adapting the flaps for nuclear bombs (p. 12).

5 One of the best things about *mental_floss* is that, when a story is done right, it gets you insanely excited about something you didn't even know you could get excited about. For instance, there is absolutely no reason I should be interested in a gadget that produces bird calls (p. 22). And yet!

6 I can't tell you how thrilled I am that we finally got Candy Chang in the magazine (p. 58). I've been a fan of her work ever since I stumbled upon these Holiday Dance cards she designed in 2007, and have been dying to land an interview with her ever since. (Somehow, Jen Doll pulled it off!)

COURTESY CANDY CHANG

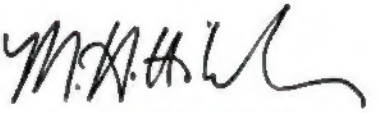
7 If you gave me a hundred guesses to tell you where the world's biggest supply of soy sauce comes from, I'm not sure that I'd ever come up with Wisconsin (p. 38).

8 Years ago, we wanted to make a T-shirt that read "Pangaea Reunion Tour!" with the dates of the fake concert listed on the back. The fact that intellectuals are actually talking about trying to get the continents back together (p. 40)? That blows my mind.

9 You should know that Jessanne had her baby and the kid is adorable. (You can trust this statement, because—like every sentence in this magazine—it was ruthlessly fact-checked.)

10 Now that that's out of the way, let me tell you my theory about penguins and bagpipes (p. 14).

The truth is, I'm proud of this staff. They put a fantastic issue into your hands. Enjoy it.



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Toronto illustrator **KATIE CAREY,** who visualizes the (nonexistent) *jungftak* on page 43, has drawn for *The New York Times* and *Scientific American*. Her current project is more personal: a series of illustrated life goals for people with low expectations—"things that I continue to struggle with personally, like stopping myself from eating crumbs off the couch."

KEITH BLANCHARD shares the secret lives of numbers on page 46, but was surprised to discover the lack of meaning in one figure. "The serial numbers on dollar bills code no information whatsoever. They're just serial numbers, from 00000001 to 99999999," he says. "Collect 'em all!" Blanchard's work has appeared in *The Wall Street Journal*, *Cosmopolitan*, and *Maxim*.

In researching how beauty changed the world for her story on page 34, **AUTUMN WHITEFIELD-MADRANO** saw recent history in a new light. "When George W. Bush told us to shop after 9/11, I thought it was odd," she says. "But shampoo ads from World War II did the same thing, with lines like 'Hair beauty is a duty too.'" Her book, *Face Value: The Hidden Ways Beauty Shapes Women's Lives*, hits shelves June 21.

Artist **JEFF ROGERS** might've mentally over-flossed while developing this issue's cover. "While thinking about how all the pieces would fit together on the subway ride home, I missed a few stops and had to change trains to make it," he says. His art has appeared in *The New York Times* and *Esquire*, and he recently designed the poster for a new play by Danai Gurira.

KATIE CAREY, SIOUXSIE SUAREZ (WHITEFIELD-MADRANO); COURTESY BLANCHARD; ROGERS

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This issue is the best yet. After I'm through making my friends read it, I'm saving it forever. #Women's History Month

@zoe1kenobi

Love the combination of @smrtgrls and *@mental_floss!* :)

@lightandgray

Lots to recommend, but have to hat tip Margaret Eby for the piece on obit writer Kay Powell

@RachelPerrone

This is awesome and now I want a grilled cheese #Grilled Cheese Badass

@gotbluetoes

MENTAL FLAW
In our March/April issue, we told you about Spider Queen, who created web-spewing bracelets with her mind, unlike Peter Parker. Reader Max Li points out: "Spider-Man's spider bite didn't give him the ability to shoot webs from his wrists! He used his scientific know-how to craft his own web-slinging contraptions." We regret the error.

It Could Be Verse

O' my Dearest and Darling *mental_floss* / Your Jan./Feb. writing did have me quite cross! / It was ever so stinky, to see a Limerick as Twinkie? / The issue I was almost forced to toss! (And I know this almost proves your point. But, well, I STILL LOVE LIMERICKS!)

—STEWART HAMILTON

Stewart: We apologize for besmirching your beloved limericks by describing them as "full of unnecessary ingredients, yet essentially substanceless" in our January/February issue.

THE AL STEWART LINK!

There's an unknown connection between Amy Johnson ["Going the Distance," March/April 2016] and Josephine Baker ["6 Women You're Never Supposed to Have Heard Of"]: Both were subjects of Al Stewart songs! Despite being known mostly for "Year of the Cat," he's probably one of the more literate and intelligent songwriters ever. An incomplete list of other denizens of Al Stewart songs that you can write about: Charlotte Corday, Stalin, Sir Thomas More, Elvis, and Warren G. Harding.
—Bailey Jones

DEAD ON

Excellent story about obituary writer Kay Powell ["The Grateful Dead of Kay Powell," March/April 2016]. My mother's first assignment as a reporter was to write her own obituary to be filed, just in case. It was a powerful lesson in humility and empathy.
—Phil Bowie

Margo, played by Summer Bishil, flips through mental_floss*'s 2015 10 Issue in the Syfy series* The Magicians. *For this year's magical lists of 10, keep reading ...*

THEY GOT OUR GOAT!

I work at a library in the small city of Regina, Saskatchewan, and was delighted to read your December 2015 article highlighting goats ["5 Goats That Changed the World"]. "Old Bill," the brave goat that served with a Canadian regiment during World War I, was the mascot for a battalion known as the "Red Saskatchewans." You can still visit Bill (albeit, a taxidermied version) at the Broadview, Saskatchewan, History Museum.
—Shana Hay

ONLINE AT MENTAL FLOSS

- 10 People Who Became Dog Toys
- 10 Lost Treasures That Could Make You Very Rich
- 10 Odd and Awesome 2011 Calendars
- 10 Tentacled Characters
- Bad Girls Club: Women of the FBI's 10 Most Wanted List

Why can't you ride a zebra?

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THIS MONTH'S THEME
ANTARCTICA

WELCOME TO THE SKI LODGE

The British Antarctic Survey's snowy digs aren't your everyday science lab.

BY **LUCAS REILLY**
PHOTOGRAPHY BY **JAMES MORRIS**

NOT MANY TRAVEL AGENCIES would recommend a visit to Antarctica's Brunt Ice Shelf. A high temperature on a blazing summer day is 25 degrees Fahrenheit; winds exceed 100 mph and regularly sling hunks of ice through the air. And each year, the shelf lurches a half-mile farther out to sea. Worse still, when the ice cracks, it puts the lives of the scientists at the Halley Research Station in danger.

So why are they even here? The Brunt is perhaps the best place on the planet to study the earth's magnetic fields and atmosphere. But it's risky business: Every few years, the base gets buried—and eventually crushed—by snow. When crevasses appear, pieces of the ice shelf can break and flip into the water, taking the base with it. In fact, the remains of Halley V are destined to sink in the ocean.

Naturally, that gave the architects constructing Halley VI pause, and they spent extra energy figuring out how to prevent the new lab from flipping into a watery grave. The solution? Skis. Completed in 2013, Halley VI consists of eight pods atop steel runners. Residents can jack up the legs to avoid heavy snowdrifts and slide the station out of harm's way. In fact, they're doing that right now. Halley VI currently sits on the wrong side of a giant crack called First Chasm. Over the next two years, the team will use bulldozers to lug the pods to the other side of the chasm, preventing Halley from taking an unwanted ice bath.

SCATTERBRAIN

SAVE THE WORLD WITH SNOWBALLS >
THE CHURCHES OF ANTARCTICA >
BEEF JERKY WORTH WARRING OVER >
GET YOUR PENGUIN A SHEEPDOG >

IDEAS!

THE PIPE DREAM

A patent, a pipeline, and an inventor's outlandish mission to save the planet with snowballs

BY LUCAS REILLY

ARTHUR PAUL PEDRICK HATED HIS JOB at the British patent office. He spent each day doing the same thing: reading applications, ensuring each new patent he read was truly original. "[It's] the most soul-destroying professional occupation in science or technology," he once moaned. So when Pedrick left in 1961, he livened things up at the patent office by becoming one of the most prolific—and unusual—inventors of all time.

Over the next 15 years, Pedrick published approximately 160 patents. He dreamed up a golf ball that steered itself onto the fairway after a hook or slice. He sketched a device vaguely resembling a hovercraft. In response to the 1973 oil crisis, he patented a horse-powered car. And to prevent nuclear war, he designed a radiation detector that could work either as a "peace-keeping" bomb or, oddly, as a cat flap that admitted only orange-colored felines[1]. (The application has commentary from Pedrick's cat: "'Purr-purr,' said Ginger, 'That's quite clever ... '")

But Patent GB1203136 (A)[2] takes the cake. Pedrick planned a pipeline for carrying "ice balls" from Antarctica to central Australia. The pipes would harness earth's rotation to zip dense snowballs 1,000 mph into a mountainous reservoir in the "dead heart" of Australia. The surplus of fresh water, he argued, would create an agricultural boom that could halt world famine.

Nobody is certain whether Pedrick was serious or just trolling the system. He may have pitied the patent examiners and wanted to give them something to smile about. (After all, many of his applications spiraled into irrelevant diatribes and included poetry.) Regardless, one thing stood in the way of his dream. "My ginger cat has just come in and I shall have to go and open another tin of cat food, which continues to rise in price," he wrote, "so how can I afford to get my 'Ice Balls' rolling into the 'Deserts?'"

[1] "Photon Push-Pull Radiation Detector for Use in Chromatically Selective Cat Flap Control and 1,000 Megaton, Earth-Orbital, Peace-Keeping Bomb."
[2] "Improvements in the Irrigation of 'Deserts' by Snow Piped from Polar Regions for the Purpose of Minimising the Impending World Famine."

ILLUSTRATION BY MARIAH LANES

KEEPING WATCH

WHAT TIME IS IT, ANYWAY?

Time's up for grabs on Antarctica. Setting your watch to the sun's place in the sky is useless, as it doesn't set in summer (or rise in winter). And following time zones—based on longitude—is tricky, because each line crisscrosses at the South Pole. Even the scientists living there can't decide. Some research bases stick to the time of their home country (Russia's Vostok Station sits in the same time zone as Bali but keeps time with Novosibirsk.) Other bases operate according to their longitude, but change it on a whim. (Every summer, Australian bases will push clocks ahead by as much as three hours to reduce fatigue for the people living there.) As for the barren Antarctic desert devoid of people, well, it follows Greenwich Mean Time.

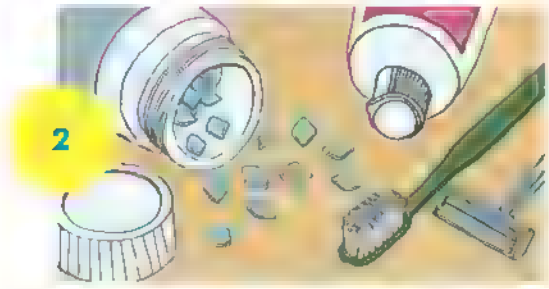
South Pole Checklist

The next time you set sail for the bottom of the earth, heed this advice.

BY **HANNAH KEYSER**

REMOVE YOUR APPENDIX

In 1961, a Soviet surgeon named Leonid Rogozov got appendicitis while stationed in Antarctica. He knew he needed the organ removed, but bad weather squashed any hope of getting out or bringing aid in. So he operated on himself. He used a mirror at first, but the inverted view was so confusing that he completed the surgery by touch. Today, several countries require that doctors have their appendix removed before visiting the Pole in the winter.



BRING VIAGRA

You might imagine the terrain of Antarctica as a flat expanse of ice, but the topography can be extremely mountainous. The elevation at the highest South Pole base is roughly 11,000 feet above sea level—twice that of Denver—and since residents are flown in, the sudden change in altitude can be dangerous. To counter the effects of the elevation change, doctors sometimes prescribe Viagra as a blood vessel dilator.

PACK TAX FORMS

Antarctica may be a long way from the United States, but that doesn't mean you can shirk your tax responsibilities. In 2007, the U.S. Tax Court ruled that since Antarctica has no government—as established by the 1961 Antarctic Treaty—it does not qualify as a foreign country. Americans must pay for any wages earned there. The U.S. Antarctic Program recommends that, before departing, you grant someone power of attorney (or file online).

CARRY A BLOOD CARD

Medical emergencies happen. Since blood has a short shelf life, there are no traditional blood banks in Antarctica—instead, residents rely on a walking blood bank: each other's veins. To expedite the process, the British Antarctic Survey requires participants to get tested for blood-borne diseases and, if they're clear, to carry a card detailing their blood type at all times.

ILLUSTRATIONS BY CHRIS BONNELL (SOUTH POLE)

FAST FACT

Antarctica literally means "opposite the bears." (It refers to the constellations Ursa Major and Minor.)

THE LINEUP

CONSIDER THE PENGUIN

The tuxedoed ambassador of the planet's coldest continent has some secrets up its flipper.

BY [redacted]

SPEAR NO EVIL

The ancient penguin *Anthropornis nordenskjoeldi* lived 35 million years ago and wielded a long, menacing spear on its head. The bird lived near the equator, prompting biologists to wonder whether penguins were originally warm-weather creatures who adapted to the cold.

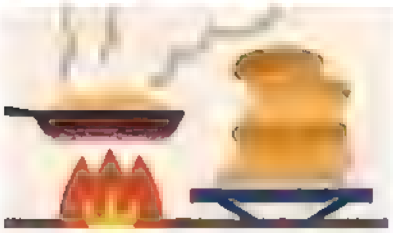
PIPING MAD

Penguins have few natural land predators. The Antarctic petrel, an avian seabird, is known to [illegible] penguin chicks, although penguins [illegible] 90 pounds [illegible] and [illegible] chicks [illegible] penguins [illegible] chicks [illegible] penguins [illegible] chicks [illegible] penguins

FROZEN MEAL GUIDE

WHAT TO EAT WHEN YOU'RE ...

... SHIPWRECKED



ANTARCTIC BANNOCKS
YOU NEED: Flour, salt, baking powder, butter[1], water, a pan, and some flaming-hot blubber
CLAIM TO FAME: After sinking his ship *Endurance* in 1915, Ernest Shackleton kept his crew alive by cooking a variety of these flatbreads on a blubber-fueled stove. Bannocks are a popular and convenient quick bread because they can be panfried. After crashing, Shackleton's chefs prepared 800 bannocks for the crew's march across the ice.

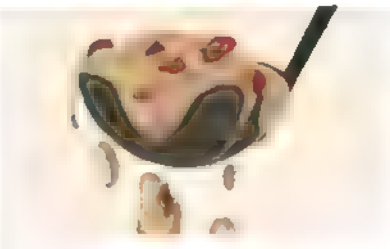
... ADVENTURING (OR STARTING A WAR)

PEMMICAN
YOU NEED: Pulverized bison meat (or beef), melted fat, and a handful of berries
CLAIM TO FAME: South Pole explorer Robert Peary called pemmican "the most satisfying food I know of." Essentially a meaty trail mix, it's a hardy survival food. In the 19th century, the food was so important on the frontier that it spurred a rebellion. The nine-year "Pemmican Wars" erupted after a Canadian fur company halted trade of the treat.

... DONE CARING ABOUT YOUR TEETH

SLEDGING BISCUITS
YOU NEED: Flour, baking soda, salt, butter, cold water, and a good dentist
CLAIM TO FAME: Like hardtack, sledging biscuits are a dense, dry, and mostly tasteless source of carbs and fat. "I reckon they musta made sledges outta them at one time and that's how they got their name," D. MacKenzie wrote in 1966. "Blimey are they tough." The food is so iconic that, in 2001, some of Shackleton's century-old biscuit crumbs sold at Christie's for £7,637

... IN SURVIVAL MODE



HOOSH
YOU NEED: Pemmican, ground biscuits, melted snow, and a pinch of imagination
CLAIM TO FAME: Sometimes containing seal or penguin, this garbage-plate stew constituted nearly every meal for early explorers. "Hoosh and go, hoosh and sleep, hoosh and go, hoosh and sleep, ad nauseam," writes Jason C. Anthony in his culinary history, *Hoosh*. After surviving a near-fatal storm, explorer Apsley Cherry-Garrard said, "the smell of [hoosh] was better than anything on earth."

[1]If supplies are low, just eat a stick of butter. Patrick Woodhead, who recently led the first east-west crossing of Antarctica, reported eating blocks of butter as you would cheese.

FAST FACT

Early British explorers pulled sleds themselves because they believed it was "morally superior" to using dogs or machines.

ILLUSTRATIONS BY MARIAH LANE

The Iceman Rhymeth

In 2013, poet **Jynne Dilling Martin**[1] won an arts grant. The prize? Six weeks at McMurdo Station in Antarctica. Here's what she discovered.

AS TOLD TO JEN DOLL

The scientists and staff are working in isolation, doing such interesting work. But it doesn't get conveyed to the public, so the National Science Foundation decided to let artists observe.

Once you get in the field, there's no running water, you cook on a Coleman stove, and there's no toilet. Human waste is shipped out by helicopter.

It's the most bureaucratic, regulated, militarized, precise environment I have ever visited. Antarctica amplified all of my senses. Not just my sense of space and physical beauty, but my sense of the unbelievable depth of time. You see in the age of the ice or the fossils just how tiny human history is.

Creativity flourishes in extraordinary ways. When equipment arrives, it's lined up in rows of cargo containers—labeled by moustache type. So instead of having rows A, B, and C, your cargo is in the "handlebar moustache" row.

The biggest surprise was the people. I met a former lawyer who now drives a bulldozer to smooth the plane runway. He told me, "I'm so much happier than I ever was as an attorney."

[1]Author of the 2015 book of poetry *We Mammals in Hospitable Times*, published by the Carnegie Mellon Poetry Series. This interview has been condensed and edited.

IN THE SPIRIT

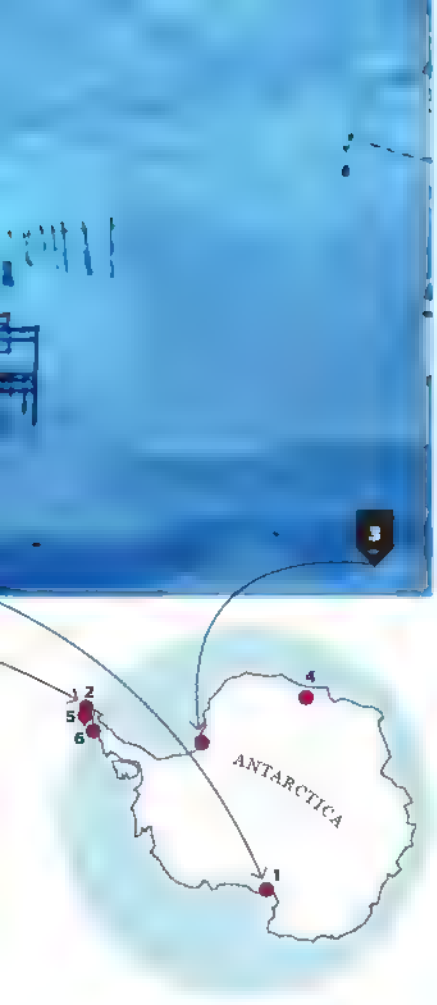
FROZEN CHOSEN

An old whaler's adage goes: "Beyond 40 degrees south there is no law. Beyond 50 degrees south there is no God." Antarctica's faithful beg to differ.

1) CHAPEL OF THE SNOWS
When McMurdo Station was built in 1956, the blueprints didn't consider religion. But as Admiral George Dufek recalled, "a mysterious pile of lumber, planks, nails, Quonset hut sections, and assorted materials" heaped up near camp. The chaplain, Father John C. Condit, used it to build a chapel. Once destroyed by fire, the new chapel hosts everything from Catholic to Baha'i ceremonies.

2) TRINITY CHURCH
The Russian Orthodox church at Bellingshausen Station may hold only 30 people, but it's arguably the most diverse house of worship on the planet. A rotating priest serves a Russian, Polish, Korean, and Chilean congregation and conducts some services in Spanish. Home to the first Antarctic wedding in 2007, the church baptizes new members in the Southern Ocean.

3) ICE CAVE CHAPEL
The southernmost place of worship on the planet is literally its coolest. The Catholic chapel at Argentina's Belgrano II Base is carved entirely from ice. To reach the space, worshippers have to navigate a maze of icy underground tunnels.



3 MORE PLACES TO PRAISE

4) JINNAH STATION
Pak stan ma nta ns two sta tions on the cont nent but observ ng Ramadan can't be easy—the sun doesn't rise

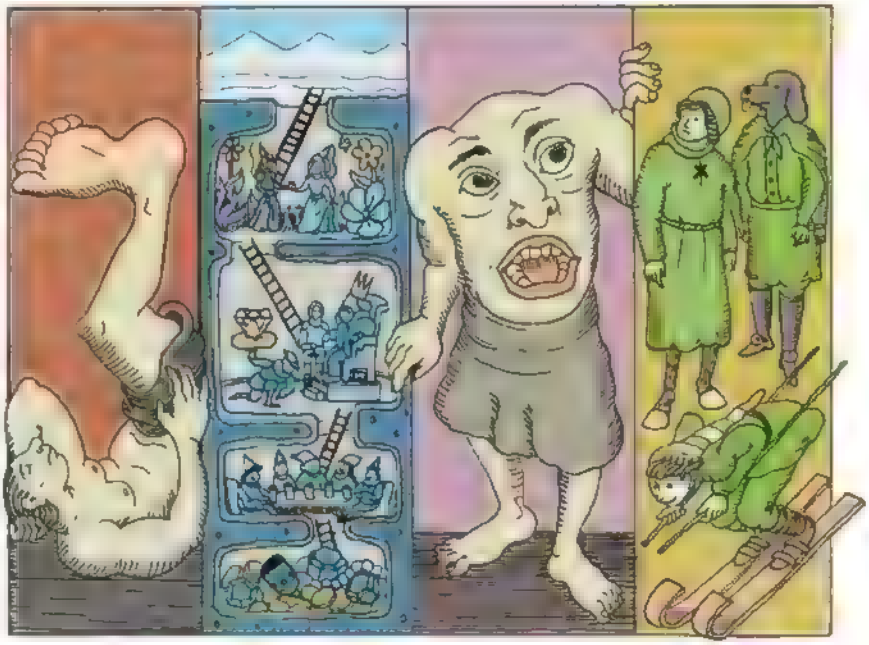
5) CHAPEL AT VILLA LAS ESTRELLAS
The biggest c v lian town on the continent (popu ation: 120) has a school, a hostel, a post office, a bank—and a church made of shipping containers

6) THE OCEAN FLOOR
n 2006, T betan ama Kirt Tsenshab Rinpoche performed a *puja*, or bless ng, and placed a carved stone Buddha on the Southern Ocean floor, stating that a water that flows by receives its b essing.

Creatures on the Edge

Medieval thinkers claimed the edges of the world were full of monsters. Here's what lurked under history's bed.

BY **SALLY GAO**



PEOPLE WITH RIDICULOUSLY HUGE FEET
In the 1086 Osma Beatus map, the lands are full of *sciapods*, or "shadow-footed men." Sciapods had one leg and hopped around on an oversized foot that doubled as a parasol. "In the hotter weather they lie on their backs on the ground and protect themselves with the shadow of their feet," Pliny the Elder wrote in his *Natural History*.

A KINGDOM OF DWARVES
According to Arthurian legend, the Antipodes—as the Southern Hemisphere and its dwellers were called—are ruled by a dwarf named Bilis the King. Some versions of the story place the Antipodes underground. They portray Bilis's kingdom as a fertile subterranean utopia full of noble dwarves who are, as folklorist Sidney Addy wrote, "no bigger than cocks and hens."

HEADLESS PEOPLE AND SKIERS
The 14th century s Hereford Mappa Mundi fills the Antipodes w.th *blemmyes*, headless folk with faces on their chests. ("Like lawyers, who speak through their bellies," one writer said.) The map got one thing right: "A man holding a long stick and wearing long flat boards on his feet: the first known drawing of skis," wrote Alan Gurney in *Below the Convergence*.

DOG-HEADED PEOPLE
The same map is decorated with *hippopodes* (people with hooves) and *cynocephali* (people with dog heads). Marco Polo wrote about the latter, saying, "In the face they are all just like big mastiff dogs!" (Saint Christopher was also depicted as having a dog head, presumably because Byzantines mistranslated the word *Canaanite* as *Canine*.)

FAST FACT

Robert Falcon Scott brought 20 ponies for his trek to the South Pole. Two were eaten. By whales

Duisburg, Germany
722 feet
69 feet

TRY THIS!

BANCHAN

In Korean cuisine, the side dish is a star unto itself.

BY FOSTER KAMER
PHOTOGRAPHY BY LIZ BARCLAY

When people think about Korean barbecue, it's usually grills topped with meats (sometimes soaked in marinade). But they risk forgetting a true joy of Korean food: *banchan*, which is the (singular and plural) term for the little side dishes and accoutrements accompanying a complete Korean meal. Banchan is meant to be snacked on and replenished throughout the experience, and used with whatever is at the center of the table. In the case of Korean barbecue, that might mean wrapping one piece of *galbi* (or short rib) in lettuce, and topping it with some kimchi, while another piece gets paired with daikon radish and topped with tofu. That's the thing about banchan—there are literally hundreds of types, and seemingly endless permutations of dishes to create. The origins of banchan aren't precise, but at New York City's K-BBQ destination Kang Ho Dong Baekjong (whose basic setup you see pictured), chef Deuki Hong* chanced a guess: "Korea was historically a dynasty, run by a monarch. If you look at old paintings of Korean meals, the tables are

covered with various foods," he explains. "Banchan are the modern interpretation of a king's feast." Baekjong's banchan count is actually on the lower end, but that's deliberate: "Banchan are supposed to work with the meal," Hong says. And do they ever; His banchan and barbecue regularly conjure lines out the door as late as 5 a.m. on weekends, full of people jonesing to try them.

Chef Hong's Koreatown: A Cookbook is out from Clarkson Potter now, and it is awesome, especially if you want to make your own banchan at home.

BRAINTRAINER

Meditate Your Way to Success

BY **FOSTER KAMER**

1 SCIENCE HAS HAD A PROBLEM measuring med tat on's effect veness. How do you make a placebo for it? But researchers have started figuring it out. In a recent Carnegie Mellon study[1], one set of sub,ects was instructed in meditation that was essent al y escap st thought, not true m ndfulness meditation. The other half was taught genu ne mindfu ness techniques that encouraged participants to focus on the present. Brain scans showed substant al resu ts. The mindfu meditators had an increase in brain activ ty assoc ated w th positive y coping w th stress, and the r eve s of stress-related inflammation remained ower than in the placebo group for months after.

2 THAT HASN'T BEEN THE ONLY STUDY ke t. Last November Wake Forest researchers pub ished[2] a tria of four groups. Each one started and ended the exper ment subjected to a pa nfu heat probe in an MRI machine. Between hot-pokings, one group heard a bor ng audioboo , one group got a "pa n-rel eving o ntment" (t was just petroleum ,elly), one group was instructed in sham med tation and another group was instructed in m ndfu meditation. The resu t? The true med tators reported sign ficant y better resu ts than everyone e se when it came to reduced physical and emot onal pa n.

3 IN FEBRUARY, RESEARCHERS AT Rutgers pub ished a stunning study[3] on depressed students. Tw ce week y sub,ects used m ndfu meditat on, then ran on a treadm l. You know what comes next: a 40 percent reduction in reported depression. So how does one start pract c ng m ndfu med tation? Wel there's an app for that. There's also been sc entific review[4] on the effect veness of those apps. Headspace and Sm ling M nd are the ones to try. Fire up your phone, and tap your way to n rvana.

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1 "Alterations in Resting State Functional Connectivity Link Mindfulness Meditation..." *Biological Psychiatry*, January 2016
2 "Mindfulness Meditation-Based Pain Relief Employs Different Neural Mechanisms Than Placebo..." *Journal of Neuroscience*, November 2015
3 "MAP Training: Combining Med tation and Aerobic Exercise Reduces Depression..." *Translational Psychiatry*, February 2016
4 "Review and Evaluation of Mindfu ness-Based iPhone Apps," *Journal of Medical Internet Research*, August 2015

THE LITTLE THINGS

The Audubon Bird Call

A classic American curio attracts flocks of birds, bird lovers, and design fanatics

BY **KYLE CHAYKA**

PHOTOGRAPHY BY **ROB CULPEPPER**

ITALIAN ORIGINS
Yale grad and Army major Roger Eddy lived in Italy after being stationed there in World War II. While hunting, Eddy spotted locals rubbing metal on a piece of hardwood. The friction emitted a chirp—attracting birds, drawn by the illusion of a flock.

GOOD WITH NAMES
Back home in Connecticut, Eddy crafted his own version, using pewter and birchwood. He patented the tool as the Audubon Bird Call (to the chagrin of the Audubon Society, which hadn't trade marked its name).

OTHER CALLINGS
Eddy was a Bird Call salesman. But he was also a successful farmer and served as a state senator and representative—"a true Connecticut Yankee," former governor John Rowland said.

SQUEAKY CLEAN
Because the chirping will stop if the call isn't kept dry, Eddy included a capsule of powdered rosin (like the violin kind) to refresh its squeak. The capsule is still included in the box to this day.

GREAT MIGRATION
Eddy died in 2003, but the business stayed in the family; it's now run by Eddy's grandson. The bird calls are still produced in the Northeast (now in Rhode Island instead of Connecticut).

THE OUTER RING OF WOOD, POLISHED SMOOTH OR PAINTED RED, WRAPS AROUND A CYLINDER OF PEWTER. TWIST THE TWO IN OPPOSITE DIRECTIONS WITH BOTH HANDS, AND A CHIRP EMERGES.

MOVING THE WOOD UP AND DOWN AND TWISTING IT FASTER OR SLOWER CHANGES THE PITCH AND PACE OF THE CHIRPS. IN THE HANDS OF AN EXPERT, THE AUDUBON BIRD CALL IS LIKE A MUSICAL INSTRUMENT.

DESIGN NERD LOVE
An icon of form-follows-function, the call is stocked by design museum shops like Cooper Hewitt. Though if you buy one, use it sparingly: The Audubon Bird Call can work too well. "I am sure not to overuse it, as it can stress the birds out," Alisa Grifo of the design store KIOSK, told the Cooper Hewitt.

GET IT! FROM $3

TOYOTA
Let's Go Places
WHAT'S NEXT
With a lower center of gravity, wider stance and new double-wishbone rear suspension, the 2016 Prius is making getaways even more thrilling. An exhilarating ride is what's
THE ALL-NEW
PRIUS
toyota.com/prius
Prototype shown with options. Actual model may vary. ©2015 Toyota Motor Sales, U.S.A., Inc.

Fight Like a Girl

How a group of 20th-century suffragettes fought the man.

BY **JAKE ROSSEN**
ILLUSTRATION BY **BYRON EGGENSCHWILER**

HAD THE POLICE KNOWN ABOUT THE BARBED wire hidden in the floral arrangements, things might've gone differently. As it stood, in March of 1914, officers in Glasgow, Scotland, were expecting to make easy work of Emmeline Pankhurst, one of the loudest voices of Britain's suffrage movement.

Pankhurst, who'd traveled from London to rally support for the cause, declared that women deserved the right to vote, ask for a divorce, and inherit land. Since her demonstrations often incited anger and unrest, public officials dispatched cops to drag protesters away. But Pankhurst wasn't about to kowtow to the authorities. Anticipating a fight, she arrived in Glasgow with an army of roughly 25 women collectively known as the Bodyguard. These "Amazons," as the press breathlessly

reported, were trained in the art of jujitsu, club-fighting, and sabotage. The suffragettes weren't preparing for hypothetical threats. The police had pummeled them before—and wouldn't hesitate to do so again.

Pankhurst made the police look foolish by evading arrest at the entrance: She simply bought a ticket and walked in. But as she held court, the officers aggressively advanced until, suddenly, a woman pulled out a pistol and fired. The bullets were blanks, but the officers were stunned—they hadn't prepared for a firefight. Using that brief moment of confusion to their advantage, the Bodyguard began tossing policemen like rag dolls, using martial arts to throw them into the razor-sharp bouquets decorating the hall. The women also pulled Indian clubs from their dresses to protect themselves from the hail of police batons. Pankhurst was arrested, but the event made an impression: The bloody scuffle was dubbed the "Battle of Glasgow," and the public began to sympathize with the suffragettes.

A protester clashes with police on November 18, 1910. The event would become known as Black Friday.

As the cops licked their wounds, the question arose: Where did a group of British feminists learn the Japanese martial art in the first place? It was all thanks to Edith Garrud, a jujitsu instructor who stood just 4 feet 11 inches tall.

WHEN SHE WAS A TEENAGER, Garrud had trouble fitting in at school and took to athletics to busy herself. She fell in love with exercise, and in 1893 she married fellow fitness enthusiast William Garrud. In 1899, the couple witnessed a demonstration by Edward Barton-Wright, a compact man who had developed his own martial art called Bartitsu. A blend of grappling and striking that offered solutions to virtually any attack, the style was so well-publicized that Arthur Conan Doyle name-checked it in a 1903 Sherlock Holmes story.

Barton-Wright introduced the Garruds to Sadakazu Uyenishi, a Japanese martial arts instructor who would teach them jujitsu. The couple mastered the techniques so well that when Uyenishi left England in 1908, they took over his London dojo. Edith ran women's and children's classes, demonstrating how even a small individual could overpower larger opponents by redirecting their force with jujitsu.

While martial arts weren't new to Britain, the juxtaposition of a demure woman with such formidable skills caught people's attention. In 1907, Garrud appeared in Britain's first martial arts movie, a silent film titled *Jiu Jitsu Downs the Footpads*. And when her husband became ill and couldn't make a self-defense demonstration for a Women's Social and Political Union meeting in 1909, Edith ran it without him. By that point, Garrud was such a celebrity that the suffragettes—Pankhurst among them—"inundated [her] with signatures." The women were so impressed, they asked her to teach twice-weekly training sessions.

The request couldn't have come at a better time. Garrud loved to teach, and she was sympathetic to the suffragettes' cause. She was especially struck by the sight of injured protesters. In a photo essay for *Health & Strength* magazine in July 1910, Garrud exalted jujitsu as "the most effective means, in moments of emergency, for repelling the attack of a ruffian. One need not be physically strong or armed with a parasol to get the better of an attacker." She claimed that her pupils put "burly cowards nearly twice their size to their feet and made them howl for mercy." She spread awareness by choreographing a play called *Ju-Jutsu as a Husband-Tamer: A Suffragette Play with a Moral*. (In it, a married woman uses martial arts to force her drunkard husband to sober up.)

By December of 1909, Garrud was running the Suffragettes Self-Defence Club. The press couldn't get enough of this tiny but domineering woman arming feminists with combat techniques. Cartoons depicted the "Jujitsuffragettes" with their sleeves rolled up, officers piled in heaps around them. Reporters and police approached Garrud and asked for demonstrations—and would wind up on their backs, bewildered. After Garrud tossed one *Daily Mirror* reporter, he picked himself up and wrote: "I rose convinced of the efficiency of Jujutsu, and, aching in every limb, crawled painfully away, pitying the constable whose ill-fortune it should be to lay hands on Mrs. Garrud."

ALAMY

Garrud enjoyed the publicity. The buzz around her martial arts classes helped women tackle cads on the street as well as stereotypes, dashing the idea that a woman's body was too delicate to provide its own defense, or that a woman needed constant male protection. It also helped her pupils grow confident. As one student explained, "I believe we will teach male rowdies who try to bother us a lesson. I have already ejected one or two disturbers of our meetings with a speed and dispatch that has surprised their lumbering masculine minds."

But Garrud's students weren't just fending off street harassers—they were fighting the law. Pankhurst's protesters were unabashed radicals, setting mailboxes on fire, throwing "flour bombs" at the prime minister, and smashing windows of shopkeepers who refused to support their cause. Their theatrics even drew the attention of a visiting Mahatma Gandhi in 1909, who soberly told the suffragettes that while their cause was just, their tactics were unacceptable.

The women felt there was no other way to be heard. The more they raised their voices, the more police raised their clubs. On November 18, 1910, a confrontation with law enforcement ended with several women battered, dozens sexually assaulted, and two dead. One hundred women were arrested. Those who protested in jail with a hunger strike were force-fed with rubber hoses. "After that, women didn't go to these demonstrations unprepared," says suffrage historian Elizabeth Crawford in *BBC News Magazine*.

Garrud remained an inspiration even as her students were locked behind bars. From the outside, she often climbed atop prison walls, waving flags and singing to cheer them on. The group didn't want to risk getting her arrested, so Garrud rarely joined the fray. That, however, didn't stop her from acting as an accomplice. Once, after a handful of women smashed more than 400 shop windows, she hid them in her dojo, where they changed into grappling uniforms. She stashed their street clothes and weapons under a trap door.

"They were all in their jujitsu coats working on the mats, when bang, bang, bang on the door. Six policemen!" Garrud later recounted to author Antonia Raeburn. "I looked very thunderstruck and wanted to know what was the matter. 'Well, can't we come in?' said one of the policemen. I said, 'No, I'm sorry, but I've got six ladies here having a jujitsu lesson. I don't expect gentlemen to come in here.' ... He didn't see anything, only the girls busy working, and out he went again."

MEN WOULD ASK FOR DEMONSTRATIONS—AND WOULD WIND UP ON THEIR BACKS.

As the fight for suffrage dragged on and it became clear Pankhurst wasn't about to back down, the activists became increasingly bold. "We mean to have a revolt," Pankhurst's daughter Sylvia said at a rally. "I and my friends are out to have a few riots."

Having graduated from fending off boors to combating increasingly violent police, Garrud faced a new task. The suffragettes knew police wanted to capture the movement's leaders at any cost. It was up to Garrud to train the Bodyguard to shield people like Pankhurst from arrest. Police, aware of Garrud's skills, tried spying on her lessons from her dojo's skylights.

Whatever they learned wasn't enough to stop the protesters. In February 1914, just a month before the rumble in Glasgow, the Bodyguard delivered. Pankhurst was giving a rousing speech from the balcony of a Camden Square home with police waiting below, eager to rearrest her. When she declared she was coming down and dared authorities to stop her, they swarmed the Bodyguard. After a protracted struggle, the police appeared to nab Pankhurst. But when they caught their breath, they looked more closely: They had caught her body double. Thanks to the diversion, Pankhurst was spirited away in the opposite direction.

At another melee, a Bodyguard member used jujitsu to knock a policeman unconscious in front of Buckingham Palace. By the time Pankhurst prepared to rally in Glasgow, the police were ready for a small-scale war. While the women were often outnumbered and frequently injured, one thing was impressively clear to both the law and spectators: The suffragettes refused to have their voices silenced.

The only thing that could stop them was a declaration of global war. And when World War I broke out, Pankhurst decided women's rights would be futile if Germany occupied Great Britain; she shifted her focus to keeping her country free. But the work was done. Years of standoffs had ignited enough unrest to spark change. By the end of World War I, women over 30 had finally won their right to vote. By 1928, any woman over the age of 21 could cast a ballot.

GARRUD SOLD HER DOJO in 1925, but by that point, opposition to suffrage had fallen hard across the globe. Following Britain was the Netherlands in 1919, the United States in 1920, Sweden in 1921, the Irish Free State in 1922, and dozens more over the following decades.

Those victories were the work of tens of thousands of women, but Garrud holds a special distinction among them: She was arguably the first to use self-defense as a means of political empowerment. Jujitsu wasn't just a practical way to protect yourself at rallies—it was a tool that bestowed women with an unshakable new sense of confidence and independence. As Wendy Rouse and Beth Slutsky wrote in *The Journal of the Gilded Age and Progressive Era*, "Garrud taught the women techniques that allowed them to take control of situations that they felt were out of their control."

After making her mark in Britain, Garrud led a quieter life. She kept busy teaching men, women, and even police officers the intricacies of jujitsu. Forever fit and disciplined, in 1971 she died shy of her 100th birthday. As her granddaughter Jenny observed: "We knew she threw policemen over her head. But other than that, she was just Nana." ●

Keep It Cool

A brief history of humans trying to chill out by any means necessary

BY **A.J. JACOBS**

LIFE IN THE PAST was all about blood, sweat, and tears. But mostly sweat. Before the invention of air conditioning, summers felt like one big Bikram yoga studio: hot, sticky, and uncomfortable.

Consider the summer of 1896. It was too infernal for New Yorkers to sleep in their apartments, so many spent their nights snoozing on rooftops and fire escapes—with restless sleepers rolling off the roofs and falling to their deaths (the heat wave's death toll in New York: 1,500). In an attempt to keep people cool—and alive—an obscure police commissioner named Teddy Roosevelt organized police stations to give out free blocks of ice.

Until the 1920s, much of America shut down entirely when things got too hot, including government: The capital would close its doors. Broadway theaters also went dark, giving birth to summer stock productions held outdoors. Across the pond, to keep babies cool, London moms bought the "baby cage," a little box they'd attach outside the window of their apartment, dangling babies stories above the pavement.

In ancient India, homeowners used water as a weapon against heat, hanging wet grass mats in doors and windows to cool the air. In ancient Rome, the rich diverted cold water from the aqueducts into pipes behind their homes' walls. Meanwhile, the superrich (read: emperors) simply got a thousand slaves to schlepp snow from the mountains to create white hills in their gardens. Wind was another method: Servants really did fan their masters with palm fronds and ostrich feathers in ancient Egypt.

Of course, Ben Franklin had a better idea. Well before wet T-shirt contests, clever Ben was experimenting with damp clothing. In the 1750s, he noticed his sweaty shirt was chillier than a dry one. This led him to delve into evaporative cooling—why objects get colder as water evaporates.

When President Garfield was shot in the summer of 1881 and lay dying in the White House, "inventors rushed forward with devices they hoped would aid the president's recovery," according to *Cool Comfort: America's Romance With Air-Conditioning*, by Marsha Ackermann. The winner? A contraption that blew air over a box of ice into a series of tin pipes. A half-million pounds of ice were delivered to the White House to keep Garfield comfortable.

AIR CONDITIONING WAS FIRST INVENTED TO KEEP MAGAZINE PAGES FROM WRINKLING.

But it wasn't until 1851 that an air conditioner prototype—then called a refrigerator—was patented by a Florida inventor. He drew up plans for a machine that could compress water into ice, using energy from horses on a treadmill. His device never made it to market; an engineer named Willis Carrier eventually came up with a more convenient solution. In 1902, he created a machine that prevented heat and moisture from wrinkling pages at a Brooklyn magazine plant. Movie theaters were some of the earliest adopters. One Newark theater owner was so proud of his frigid air, he took out a 1927 newspaper ad that consisted of complaint letters from patrons who found it *too* chilly. Talk about cool customers. ❁

ILLUSTRATION BY JOE MELANSON

Here's the answer: the egg came first.

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GRAMMAR TIME!

THE LYING LINGUIST

How one man formalized his gibberish and fooled Europe's scholars.

BY ARIKA OKRENT

NOBODY KNEW WHAT TO MAKE OF George Psalmanazar. From the day he arrived in London in 1703, his pale features, shabby dress, and raw meat diet raised eyebrows. Stranger still was the way he worshiped the sun and moon, his unusual patter, and the odd symbols he scribbled.

Psalmanazar was accompanied by Alexander Innes, a Scottish priest eager to introduce the boy to London's scholars. The two had met in Holland, where Innes was serving as an army chaplain. Psalmanazar was an oddball local who claimed to hail from the island of Formosa—what Europeans called Taiwan at the time. As he told it, he'd been kidnapped and brought to Europe by a Jesuit missionary. Now, Innes planned to take credit for converting the heathen, knowing it would do wonders for his career.

Psalmanazar was full of fascinating tales, but his most unusual quality was his dialect. His Formosan used 20 characters, some of which resembled Greek and Hebrew letters, intriguing scholars interested in the migration of language. He spoke Latin as well, but it was blurry in comparison with his flawless "native tongue." Psalmanazar would credit the rote memorization he'd been drilled in as a schoolboy for his rise as Europe's most famous Formosan. Which he undoubtedly was—though he'd never set foot in Formosa.

Psalmanazar was probably French. He left home as a teenager to travel through Europe in search of patronage and a little fun. At first he pretended to be an Irish pilgrim, but ran into too many people who knew too much about Ireland. So he pretended to be Japanese. Then he relocated to Formosa, about which practically nothing was known. He invented all sorts of outlandish customs (Cannibalism! Ritual sacrifice of children!), but what really sold the story was the language.

In the early years of his hoax, Psalmanazar spoke in gibberish and wrote in nonsense characters. Then one day Innes asked him to produce a written Formosan translation of a passage from Cicero. Psalmanazar dashed one off. Innes took the paper away, and asked him to do it again.

Psalmanazar was sure the jig was up: There was no way he could repeat the scribblings. But Innes was less concerned with Psalmanazar's soul than with the cushy job he'd secure if he could deliver a converted Formosan to the Bishop of London. Innes told Psalmanazar that he'd be wise to be more prepared should a similar test arise again. He needed to take his top-of-the-head gibberish to the next level. He needed to construct a language.

At the time there were few existing descriptions of Formosa, or even Japan, so when Psalmanazar claimed "the language of Formosa is the same as that of Japan, but ... the Japanese do not pronounce some letters gutturally as the Formosans do," nobody could prove otherwise. Same thing with how he wrote from right to left. His explanation of verb tenses was exotic (some tenses were indicated by a rising or falling tone of voice) yet familiar to language scholars who were steeped in the Latin tradition, which had special forms for specific tenses. "I love" was *Jerh Chato*; "I was loving," *Jervieye Chato*; and the form known to Latinists as *paulo post futurum*—used for action taking place in the near future—was *Jerh viar Chato*. It seemed like something a language might do, and it excited those who studied it, appealing to their thirst for understanding worlds beyond our reach.

HE NEEDED TO TAKE HIS NONSENSE TO THE NEXT LEVEL. HE NEEDED TO MAKE UP A LANGUAGE.

Besides, what kind of fool would take the time to make up an entire language just to back up a murky origin story? And how clever would that person have to be to craft one that stood up to scrutiny? As Psalmanazar later wrote, those who examined his translations "found the language so regular and grammatical, as well as different from all others they knew, both with respect to the words and idiom, that they gave it as their opinion, that it must be a real language." Convincing London society that he was legit was as easy as *taufb, bogis, charhe* (or *one, two, three* in "Formosan").

Innes got his promotion in the church and left for a post in Portugal. Psalmanazar spent the rest of his life in England, where he eventually faded from public life and gained a reputation as a lovable eccentric. And when no one definitively proved he wasn't who he said he was, he took that honor himself. Published after his death, his memoirs roguishly apologized for his fraud.

Psalmanazar's linguistic creation, however, lived on, appearing in collections of translations of the Lord's Prayer into the 20th century. Forgive us our trespasses, as we forgive our trespassers. Or as they say in Formosan: *Radonaye ant amy Sochin, apo ant radonern amy Sochiakhin.* ❁

THE

A little birdie told me we have a plan for saving the planet-nuking Mars!
P. 41
Have you heard about the newest way to keep your lawn green? Dye it.
P. 45
10

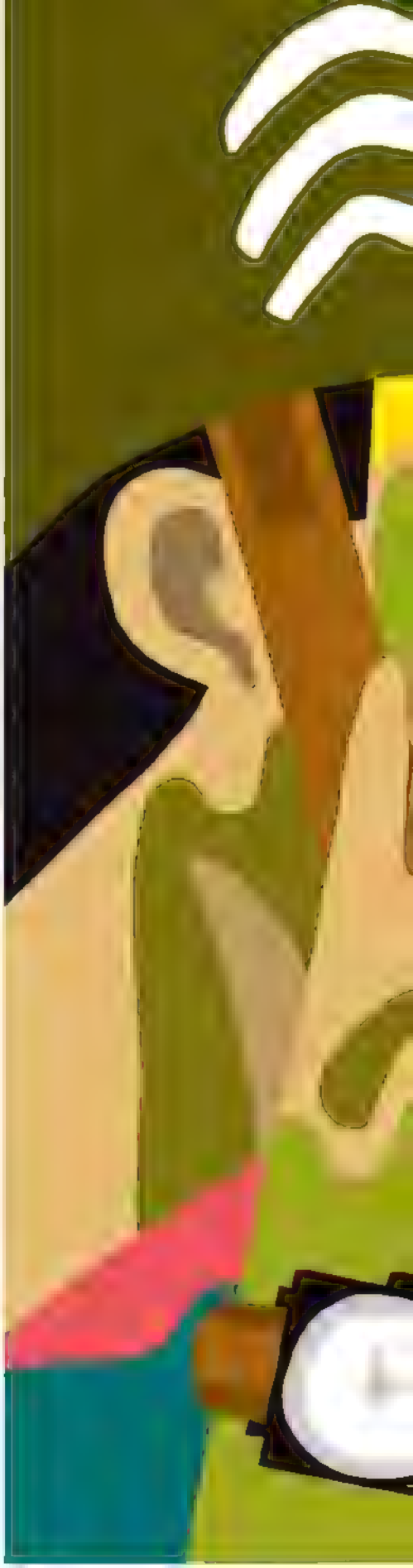
Do you aspire to new levels of esquivalience? We can help with that!
P. 43
Pssst . you're celebrating Independence Day all wrong!
P. 49
Turns out someone left a whole world of ridiculously interesting facts out there. Don't worry! We organized them for you.
ISSUE

ILLUSTRATIONS BY KAFE CAREY

10 WAYS BEAUTY GAVE HISTORY A MAKEOVER

Want to topple a politician or inspire a nation? We've got (beauty) tips for you.

BY **AUTUMN WHITEFIELD-MADRANO** ILLUSTRATION BY **ALEX EBEN MEYER**



1 It kept wartime spirits high At the height of World War II, Winston Churchill sat down with an unexpected crop of advisors: women's magazine editors. He had a specific agenda. Though material supplies were limited, Churchill—an impeccable dresser—understood that feeling stylish was integral to buoying national morale. To keep spirits up, officials supplied high-profile female munitions workers with enough face powder to maintain appearances. But when they saw that magazines were urging readers to stretch cosmetics during wartime using tricks like melting lipstick ends and mixing them with almond oil, they realized a new ally was at hand. The government's textile conservation program—the Utility Clothing Scheme—was a hard sell. It mandated that designers ration materials by using fewer pleats and seams and shunning ornamentation. Churchill asked the magazine editors to frame the changes as stylish and patriotic. Whatever misgivings they might have had, they obliged. Dressing dowdily in the name of patriotism cemented a marriage between personal style and national pride.

2 It supplied red-blooded troops with the makeup to win World War II

In the early 1940s a government procurement officer approached Charles Revson, the founder of makeup company Revlon, with a question: What did he know about powder? Revson's reply: "Everything." Revson meant face powder. The officer meant gunpowder. Despite the mix-up, Revson agreed to help produce hand grenades in addition to the first-aid kits he'd already been manufacturing. Other cosmetics pitched in too: Max Factor created camouflage makeup, and Helena Rubinstein supplied kits with sunburn cream and face wash.

3 It put divinity at Muslim women's fingertips Shabana Haxton wanted to wear nail polish. Like all practicing Muslims, the California nurse couldn't wear it regularly: The Koran states that, before prayer, worshippers must run water over the *entirety* of their hands, a ritual called *wudu*. But nail polish prevents water from reaching the nail. Then Haxton discovered a loophole. In 2009, Polish chemist Wojciech Inglot had invented a polish using the polymers found in breathable contact lenses. It allowed air and water to reach the nail, thus protecting against infection. Haxton performed an experiment, dabbing regular enamel and Inglot's formula onto a coffee filter, letting the swabs dry, then applying water over both of them. Water seeped through Inglot's formula! Haxton showed her imam, who blogged about the experiment in 2012. Sales of Inglot's formula skyrocketed, and today the nail polish is certified halal.

4 It helped a man dress for the moon Engineer Lenny Sheperd knew that his employer, Playtex, made the best bras in the business. Back in 1962, NASA noticed. Not only did the company manufacture high-quality bras and girdles, they'd also created the first household latex glove, sold to prevent chapped, reddened hands while dishwashing. So the aerospace engineers offered Playtex a contract for the space suit, but stipulated they partner with Hamilton Standard, an aircraft developer. The partnership stifled Playtex's innovation, and they lost the contract. When NASA opened up bidding on the space suit three years later, Playtex convinced the aerospace experts to give them a second chance. Enter Sheperd. In order to win the bid, Sheperd knew his team needed to not only "borrow" back their original blueprints, they'd also need to work around the clock to advance the suit's design. He even had to pick the lock of his own office to let his team work in 24-hour shifts. The efforts were successful: When Neil Armstrong took that giant leap for mankind, he took it in Playtex.

5 It pushed the pharaohs to advance chemistry Egyptians famously rimmed their eyes with black makeup. The makeover wasn't just for humans—cows led into ritual slaughter also got the face paint, as shown in art from 2500 BCE. Manuscripts from the era claimed that the eyeliner protected wearers from eye infections, but modern-day scientists were skeptical. After all, the most common formula contained lead. But in 2009, a team of chemists led by a researcher from the University of Pierre and Marie Curie in Paris analyzed samples scraped from tombs and found the ancients were onto something. Lead ions—while still toxic in other ways—also helped produce nitric oxide, a free radical that killed bacteria before they could infect the eyes. Further, some of the compounds in the eyeliner aren't native to Egypt, leading researchers to believe that the makeup wasn't just used because it was on hand—it was deliberately manufactured. The study's authors dubbed the eyeliner the first large-scale chemical manufacturing process known to us—an ancient predecessor to Big Pharma.

6 It rocked the court of Louis XIV If you were a wealthy woman having husband trouble in 17th-century France, you might have turned to society's secret weapon, a sorceress known as La Voisin. She'd sell you a perfume, a complexion salve, or a bust-enhancing cream. She might even cook up an aphrodisiac. But for *really* troublesome husbands, La Voisin would recommend an "inheritance powder"—that is, poison. The reputation of La Voisin, whose real name was Catherine Monvoisin, grew among the elite, including King Louis XIV's favorite mistress, who was just one

ILLUSTRATION BY ALEX EBEN MEYER

8 It changed the advertising landscape The shaving cream developed by Minnesota businessman Clinton Odell in the 1920s wasn't doing well—until his son erected handpainted roadside signs. Spaced out in a series, the ads presented verses that families cruising by in their still-exotic automobiles could read, like: "If harmony / Is what /You crave / Then get / a tuba / Burma-Shave." Odell's wasn't the first company to dabble in roadside advertising, but it proved the medium worked. Sales went from virtually nothing to $68,000 by the end of the campaign's first year. It may have been too successful: Highways became cluttered as more companies turned to roadside advertising, prompting Lyndon Johnson to pass the 1965 Highway Beautification Act, which tightened ad regulations.

of many people poisoning rivals in the court. By the time authorities put "The Affair of the Poisons" to rest, at least 200 people were arrested, 36 were executed, and 23 were exiled, including a number of Louis's courtiers. Proof that beauty can be deadly—or simply that soap operas have nothing on history books.

7 It ousted a president from office When President Martin Van Buren asked Congress for $4,675 for White House renovations, Whig congressman Charles Ogle spotted an opportunity. The president dressed well to paper over his modest background, but the habit had earned him a reputation as a dandy that Ogle was eager to exploit. And boy, did he. For three days, Ogle held the House floor, claiming the president had gilded mirrors "as big as a barn door" so he could gaze upon "his plain republican self." Ogle saved his greatest contempt for Van Buren's toiletries, accusing him of spending "hundreds of dollars in supplying his toilet with Double Extract of Queen Victoria." He bolstered the image by describing Van Buren lazing about in the bath massaging his whiskers. The jabs implied that Van Buren was out of touch with the common man. Ogle's needling didn't go unnoticed: The Whigs handily won the 1840 election, with William H. Harrison carrying 234 electoral votes to Van Buren's "plain republican" 60.

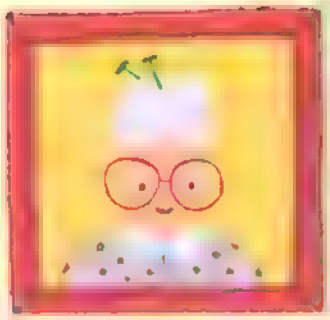
9 It stopped electrocutions You know those "test" and "reset" buttons on your electrical outlets? They're a safety feature called a ground-fault circuit interrupter, or GFCI, designed to reduce electrocutions. It interrupts supercharged currents—like when an appliance has been dropped in water. When the portable hair dryer became popular in the 1960s, people thought that as long as the appliance was powered off, it was safe around water. It wasn't. Faced with dozens of deaths a year from wet dryers, the government mandated the GFCI in new American bathrooms in 1975. The tactic worked: Today, the number of annual dropped-dryer deaths is near zero.

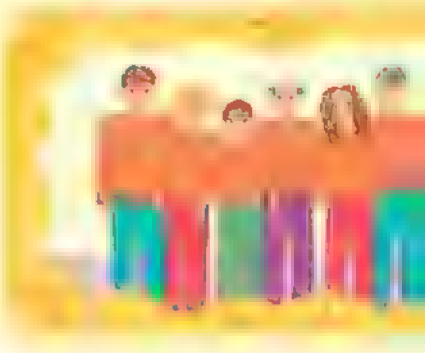
10 It helped weapons vanish into thin hair It was September of 1180 in Kamakura, Japan, and Minamoto Yoritomo, the Genji clan's commander, was prepping for battle. Weapons? Check. Troops? Check. Then he amazed his minions by tugging on his topknot and removing a tiny, good-luck statue he'd hidden in his hair since he was 3 years old. (He was afraid of ridicule should captors find it.) The art of hiding something in one's hair came to be called *sōhatsu no jutsu*, and it wasn't practiced just by military men. The wives of male samurais also trained in self-defense, and hairpins—designed to keep the hair in place—made for convenient weapons. Hiding the daggerlike pins in artful updos gave the ladies a leg up.

10 QUIRKY FAMILIES THAT STILL RULE THE WORLD

You'd never confuse them for the Rockefellers. But you also wouldn't have curling without 'em.

BY **JEFF WILSER** ■■ ILLUSTRATION BY **KATIE CAREY**





1 Family: *The Rosenwachs* Power: *Hydrating Wall Street, Broadway, and the Media*

Look up in New York City and you'll no doubt see a wooden water tower topping a roof. Resembling rustic grain silos, the towers are an iconic part of the cityscape and quietly keep millions of people alive. (Normal pipes can't pump water more than six stories, and these barrels help hydrate higher floors.) The whole industry is run by just three families, but the Rosenwachs reign supreme. They made their first barrel in 1894 and have built more than 10,000 since. The technology hasn't changed much: Each tank lasts 30 to 35 years, at which point it will be replaced ... likely by a Rosenwach.

2 Family: *The Kays* Power: *Keeping the World Stoned*

An uninhabited 240-acre slab Keats once called an "ocean-pyramid," Ailsa Craig in Scotland is the only known source of common green and blue hone granite, the crucial ingredients for Olympic curling stones. The granite's molecular structure sits in a Goldilocks zone: Water can't soak in, but a hint of elasticity stops the stones from cracking when they bump on the rink. Thanks to a 200-year-old agreement, the Kay family has exclusive rights to quarry these magical rocks, making them the world's largest—and nearly only—supplier of curling stones.

3 Family: *The Frelinghuysens* Power: *New Jersey Politicking*

Forget the Kennedys and Roosevelts. This is America's real political dynasty. In 1775, Frederick Frelinghuysen joined the New Jersey Provincial Congress and later served in the Senate. Every generation of Frelinghuysens has produced a politician since, including a secretary of state (in Chester Arthur's cabinet), a vice-presidential candidate (remember 1844's Clay-Frelinghuysen vs. Polk-Dallas?), and four more senators. Today, Rodney Frelinghuysen—Frederick's great-great-great-great-grandson—represents New Jersey's 11th district in the U.S. House of Representatives.

4 Family: *The Kongōs* Power: *Building Religion*

Shigemitsu Kongō was commissioned to build Japan's first Buddhist temple in 593, even though almost nobody there practiced the religion. (Most Japanese were Shintoists.) But as Buddhism spread, Kongō's family acted as the country's default temple architects, building nearly every major temple for the next 1,400 years. After 40 generations of keeping it in the family, the business went under in 2006. However, the Kongōs' influence on Japan's architecture—and its 45 million Buddhists—remains unshakable.

5 Family: *The Brookes* Power: *Designing Wartime Fashion*

John Brooke & Sons (and sons and sons...) specialized in military uniforms, with 15 generations making wool outfits for the British army and navy, the French army, and even the Russian army. British

troops kept warm in their wool while fighting everybody from Napoleon to Hitler. At the dawn of the Cold War, even Soviet military police wore John Brooke & Sons overcoats—proof the two sides could agree on at least one thing: fashion.

6 Family: *The Hoffmanns* Power: *Making the People Cough-Free*

In 1898, Fritz Hoffmann-La Roche invented an effective over-the-counter cough syrup. To make it drinkable, he flavored it with orange, the way he took his cognac. And to help it move off shelves, he partnered with makers of "saint cards." The baseball cards of their day, the collectibles depicted a saint—and an ad for "Roche's Syrup." Somehow the marketing scheme worked, and the saints have been looking out for the family ever since. He used the booming sales to branch out; Bloomberg recently valued the health care juggernaut at $35 billion.

7 Family: *The Christiansens* Power: *Building Budding Engineers*

Put aside the fact that there are 86 Legos for every human on the planet, or the fact that your grandpa's blocks will snap into ones made in 2016. The Lego company—a family business started by Ole Kirk Christiansen in 1932—helps build the world. At MIT, a project called Lifelong Kindergarten partners with Lego to teach kids how to create robots, assemble jets, and master principles like torque. And Lego's Architecture Studio, a monochrome kit of 1,200 pieces with a 272-page book from architecture firms, unlocks secrets behind structures like Dubai's Burj Khalifa. (Assembly required.)

8 Family: *The Maltas* Power: *Ringing Praise for Church and High School Music Programs*

Biggie vs. Tupac. Jobs vs. Gates. Hoover vs. Pied Piper. They have nothing on the Handbell Wars. In 1973, Jake Malta, a star engineer for the handbell company Schulmerich, quit to start his own business, Malmark, just 10 miles down the road. After traveling Europe to study the science of bells, he designed a new handbell that he insisted was purer than all the bells before it—perfection, really. Lawsuits followed. A legal war raged for 30 years, one case almost reaching the Supreme Court in 1992. As NPR reported, though, the titans finally reached peace. "The enemy is the 300 million people out there who don't ring handbells," Schulmerich's Jonathan Goldstein said.

9 Family: *The Halls* Power: *Dictating Schmaltz*

When Joyce C. Hall was a broke teenager, he earned extra cash by selling postcards. In 1910, he moved to Kansas City with a shoebox full of wares and began selling them out of a YMCA. His brothers joined in, and the company grew as demand to send cards to troops rose over the two world wars. Today, the company pumps out 10,000 products every year and has seemingly touched every American's birthday, wedding, and funeral. You know it as Hallmark.

10 Family: *The Mogis* Power: *Bolstering the Wisconsin Economy*

Every bottle of Kikkoman soy sauce you buy in the United States comes not from Japan but Wisconsin. The Mogi family began making soy sauce in Japan in 1630. But in 1972, under the leadership of Yuzaburo Mogi, Kikkoman opened a factory near the abundant soy fields of Walworth, Wisconsin. The factory now churns out 29 million gallons a year, making it the single biggest soy sauce factory on the planet.

10 NUTTY PROPOSALS TO SAVE THE PLANET

Necessity is the mother of invention.
But a little kookiness could preserve Mother Earth.

BY **SALLY GAO**

ILLUSTRATION BY ALEXEBEN MEYER

2

We need: *To stop consuming so many resources*
Solution: *Downsize humankind*

At 6-foot-5, Dutch artist Arne Hendriks isn't proud to be using more than his share of global resources. We're running low on everything, and humans are making matters worse by growing taller, living longer, and reproducing more. So Hendriks thinks people need to shrink. More specifically, he wants to bring the human race down to 20 inches tall. At that height, we'd need only 2 percent of the resources we use now. To get started, Hendriks says we should stop eating growth hormone–stimulating foods and get genetic counseling so we can select for shorter kids. He argues that gene manipulation could make people, not just the planet, healthier: Laron syndrome, a form of dwarfism, confers near-immunity to cancer and diabetes.

3

We need: *To all get along*
Solution: *Relive the Triassic period*

The Political Tectonics Lab has a strange mission: Convince the world's nations to unite and create a new supercontinent called Pangaea Optima, named after the single continent that existed 200 million years ago. At the helm is Jonathon Keats, a philosopher and conceptual artist who exhibited his idea at San Francisco's Modernism Gallery in 2015, complete with plans to control the movement of the continents by hooking nuclear reactors to the seafloor. It would be costly, but Keats expects to raise funds by selling naming rights to the new bodies of water that'll be created. If the plan sounds bonkers, Keats has done his job. The project isn't about feasibility—rather, it's a thought experiment about how physical spaces divide us. Which is to say: He's literally (and figuratively) talking about finding common ground.

1

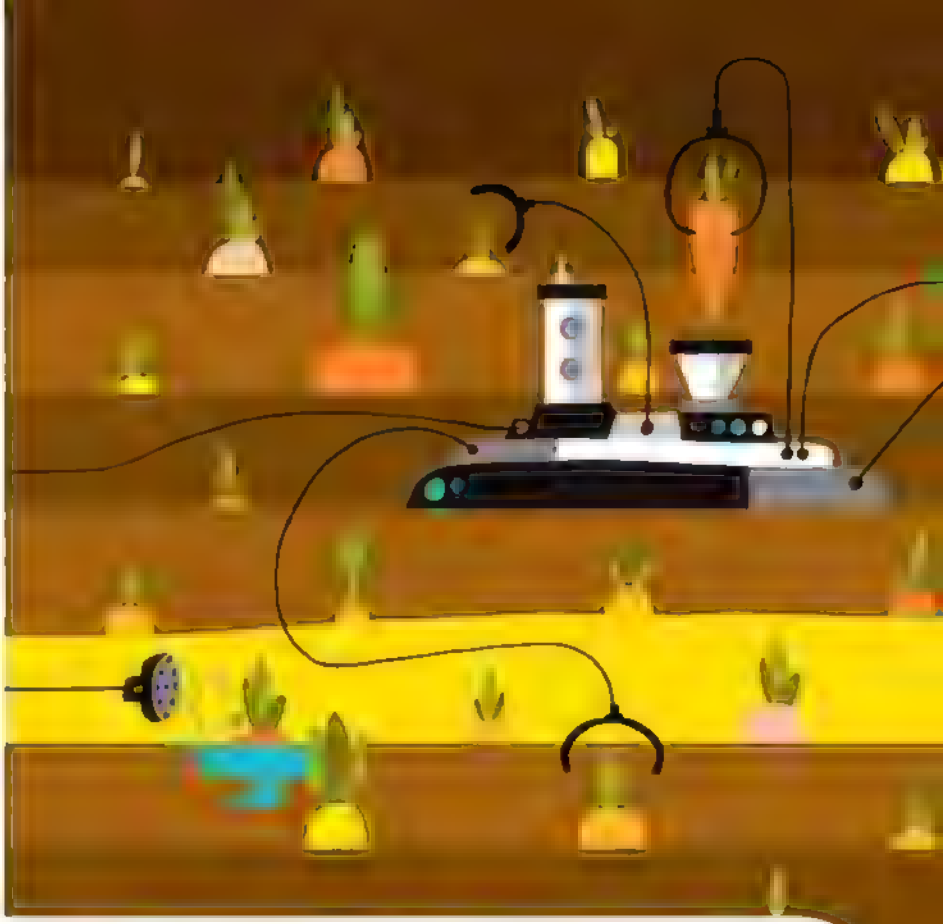
We need: *Mars to be inhabitable*
Solution: *Nuke Mars!*

Mars is as cold as an Antarctic winter (see page 10). So billionaire entrepreneur Elon Musk threw out this idea: If Mars is too chilly for human habitation, why don't we drop some thermonuclear bombs there to heat it up? Musk doesn't want to nuke the Red Planet itself—just the sky over its two poles, creating twin suns that would heat the planet's surface, by turning Mars's store of carbon dioxide (currently trapped in its ice caps) into gas. At some point, the greenhouse effect would kick in. If we got it warm enough, we could even plant trees to thicken the atmosphere with oxygen. Academics reacting to Musk's ideas ranged from dismissive to tentative ("It's possible, but ..."). For one, we'd need to send thousands of nukes over centuries. Others warn that radiation could harm the planet. And if there *is* life on Mars, this wouldn't be the smartest way to say hello.

4

We need: *Better ways to harness sunlight*
Solution: *Put a solar farm in space*

The Japan Aerospace Exploration Agency (JAXA) thinks that, by 2030, it will be able to harvest solar power straight from space—where sunlight is 24/7, with no atmosphere to dampen the rays. They hope to beam it down to an antenna in Tokyo Bay, but it comes with a challenge: figuring out how to deliver the solar energy to Earth with pinpoint accuracy. After all, any unintended targets of the beam could get fried to a crisp. Oh, and that's on top of figuring out how to make the 10,000-ton transmitter orbit Earth with our rotation. In March 2015, JAXA transmitted 1.8 kilowatts of electricity—enough to power your cell phone for nearly two years—170 feet to a relatively small antenna. It's the first time that such a large amount of power has been delivered wirelessly with accuracy. Now they just have to extend it 22,000 miles.



5

We need: *An extra hand*
Solution: *Create designer organisms to do our bidding*

Biochemist J. Craig Venter founded Synthetic Genomics Inc. (SGI), a company devoted to creating "biomachinery"—genetically engineered organisms that can do, well, whatever we need. One project involves developing microbes that can clean water and generate electricity. When you put microbial fuel cells in wastewater, they feed off organic matter and transfer electrons as they "digest." That energy transfer can actually be used to generate a current! SGI has also partnered with ExxonMobil to enhance the oil-producing abilities of algae, opening doors for a greener source of biofuel.

6

We need: *To lower the Earth's temperature*
Solution: *Confetti the stratosphere with sulfur*

When the Philippines' Mount Pinatubo erupted in 1991, it spewed nearly 20 million tons of sunlight-reflecting sulfur, causing the global average temperature to drop by 1 degree Fahrenheit for 15 months. (Polar bears born that winter are called "Pinatubo cubs," because the extra sea ice that year made hunting easier, making the bears extra large.) Since then, scientists have toyed with the idea of spraying the stratosphere with sulfur to combat climate change. Researchers at leading British universities proposed blasting the particles using naval artillery or releasing a balloon that would scatter the sulfur through a hose. Skeptics warn that the plan could weaken monsoons, cutting short the rainfall that provides drinking water for billions. At best, it's a short-term fix.

7

We need: *Protection from Armageddon*
Solution: *An IRL giant arcade game*

Astrophysicists at UC Santa Barbara have come up with an Atari-inspired plan in case an asteroid finds itself on a collision course with Earth: Mount a giant laser beam on a remote-controlled spacecraft, and blast the incoming rock. Once the asteroid surface reaches 5,000 degrees Fahrenheit, it will start to vaporize, mucking up its rotation and steering it away from the planet. The solution is slightly more elegant than NASA's current intervention plan: nuking it.

8

We need: *More food*
Solution: *Robot veggie farms*

We're running out of food: The World Bank estimates that by 2050, climate change could reduce harvests by a quarter, yet we'll need 50 percent more food than we produce now to feed a bigger population. So a Japanese company, Spread, has invented a super-efficient way to grow vegetables regardless of climate—robots. Inside the indoor farm known as the Vegetable Factory, robotic arms water, trim, and harvest crops while sensors adjust humidity, light, temperature, and carbon dioxide levels. Compared with a non-automated farm, the robot farm saves labor costs by half and energy costs by a third. Spread has already built a lettuce factory that can harvest 21,000 heads of lettuce a day.

9

We need: *To get out of the sun*
Solution: *Put sunshades in space*

In 2006, optics expert Roger Angel published his proposal to launch trillions of translucent discs into space to cool the planet down. The discs would float between the Earth and the sun, cutting sunlight exposure by 1.8 percent. Although Angel's work was praised by academics,

ILLUSTRATION BY ALEX EBEN MEYER, ROBOTS

it's too costly. The project would cost $5 trillion—about 10 years of U.S. military defense spending. His new plan is easier on the wallet. It involves redirecting sunlight with giant mirrors here on Earth.

10 We need: *Faster wind power* Solution: *Grow some tornadoes*

Tornado-force winds usually blow the power out, but Louis Michaud thinks they could help keep the lights on. By day, Michaud worked as an engineer at an oil refinery in a polluted town dubbed Ontario's "Chemical Valley." Nights were spent tinkering in his garage with turntables and plastic cylinders, working on a tornado generator. (Or, as he calls it, an "atmospheric vortex engine.") Michaud finally got his break three years ago at age 72, winning a $300,000 grant to start building bigger, better prototypes. His most recent version creates a vortex that can reach a height of 65 feet, but the goal is to (somehow) create an 8-mile-high tornado to generate 200 megawatts of electricity. At that size, an hourlong tornado could produce nearly enough electricity to power 20 American households for a year. ❁

ILLUSTRATION BY KATE CAREY (BLISS)

10 Masterful Mountweazels* and Other Word Pranks

1. *THE ORIGINAL MOUNTWEAZEL: Lillian Virginia Mountweazel was a photographer and fountain designer killed in a 1973 explosion. Mountweazel was also fake, a copyright trap to catch plagiarizers of the 1975 New Columbia Encyclopedia.

2. STEINLAUS: This "stone louse," made up by a German cartoonist, wriggled its way into a medical dictionary in 1983 as a treatment for kidney stones. The steinlaus (which allegedly helped take down the Berlin Wall) was so popular that when editors cut the fictional mite in subsequent editions, readers protested.

3. JAKOB MARIA MIERSCHEID: If you have questions about the steinlaus, contact the foremost expert in the world: German politician Jakob Maria Mierscheid. As you can guess, Mierscheid doesn't exist, but he's included on most lists of German parliament members.

4. APOPUDOBALIA: Did you know that *apopudobalia*, a classic Roman sport, is the forefather to modern soccer? That's smart if you said no; this "sport" was a copyright trap for an antiquities encyclopedia.

5. ZZXJOANW: Fun fact: The Maori don't use the letters *J, X,* and *Z.* So it's suspicious that 1903's *The Musical Guide* describes "zzxjoanw" as a Maori drum.

6. ESQUIVALIENCE: If you've ever procrastinated, the New Oxford American Dictionary has the perfect fake word for you, meaning "willful avoidance of one's official responsibilities."

7. DORD: A happy mistake, "dord" was supposed to read "D or d" and mean "density," but a sleepy editor missed the space bar, creating a short-lived word in the 1934 edition of Webster's New International Dictionary.

8. AGLOE, NEW YORK: What started as a mapmaker's copyright trap for catching plagiarists eventually became a real place: The Agloe General Store popped up on its location in the 1950s.

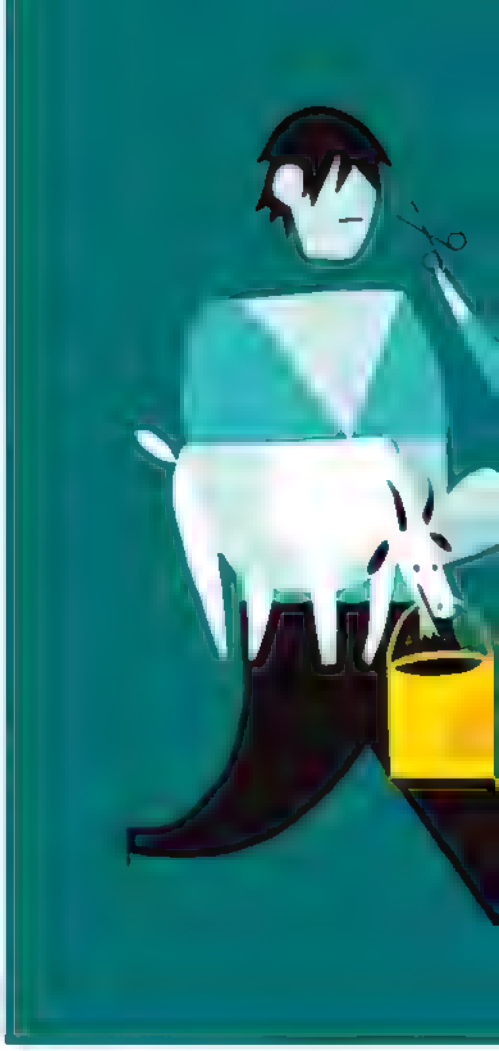
9. BEATOSU AND GOBLU, OHIO: Michigan cartographers had fun with the Buckeyes, placing these two fake towns just across the border into Ohio. Goblu, Michigan, would later be named the hometown of *G.I. Joe*'s Road Pig.

10. JUNGFTAK: If the jungftak were real instead of a creation of Webster's New Twentieth Century Dictionary, it would be the symbol of codependence: The Persian bird has one wing and a hook for attaching itself to its mate. —LUIS PAEZ-PUMAR

10 Services You Never Knew You Needed

The perfect gift for the goat-loving, grandma-hogging adrenaline junkie in your life

BY **GABE LUZIER**



Nostril-Hair Notification

Nasal hair stops dirt, bacteria, and other microscopic intruders from entering the body. But sometimes the bushy gatekeepers can go overboard. If you don't have the nerve to tell a friend or loved one that his or her nostrils resemble overwatered Chia Pets, you can use the online service Cholol to send an anonymous email. Messages can be customized to be "mild" or downright "scornful," though you'll need to provide details identifying the offending nostril, and how many hairs are poking through.

Lawn-Mowing Goats

Clearing land of annoying vegetation can be a headache, especially when it's on a slope. Rent-A-Ruminant, a land management service in western Washington, offers a simple solution. Release a tribe of goats to gobble up the brush. "Goats are a pesticide-free, noise-free, emission-free, economical, efficient, and amusing way to cut and discard of dry grasses and invasive weeds," the website states. Customers include Washington's Department of Transportation and the U.S. Navy.

Kidnappers-4-U

If being tossed into a windowless van, blindfolded, taped to a chair, and left in a basement sounds like your idea of a good time, you should see a doctor. Or book the French kidnapping company Ultimate Reality. For around $1,000, the firm mixes the terror of abduction with the fun of an abduction. When *GQ*'s Drew Magary was "kidnapped" by a service in 2013, he was forced to listen to Eurythmics's "Sweet Dreams" on repeat. And repeat.

Rip Your Own Bodice

Thanks to YourNovel.com, you can star in your own romance for about $50. Just complete a questionnaire about your preferred pet names and your dreamboat's hair color, and the husband-wife team of J.S. Fletcher and Kathy Newbern will incorporate your answers into one of 50-plus prewritten bodice rippers. (We recommend *A Ren Faire to Remember*.) All stories come in "wild" or "mild" versions. And for those looking for an excuse to grow out your hair like Fabio, they'll even put your picture on the cover.

Ear-Cleaning Parlors

Centuries before cotton swabs appeared, Vikings and other cultures used tiny spoons to scoop out earwax. In Japan, they used bamboo picks called *mimikaki*. Today, the tool is still a cultural mainstay. In fact, when Japan declared in 2006 that ear-cleaning professionals didn't need medical licenses, ear-picking parlors sprouted up across the country. A half-hour session is a popular time-saving alternative to the spa.

Travel Agencies for Teddies

If you need a vacation but don't have the time or money, companies such as Teddy Tour Berlin and Jnagi Travel will schedule a once-in-a-lifetime adventure ... for your stuffed animal. Just ship your plaything overseas and, for as little as $35, an employee will take it on a sightseeing tour and document it on social media.

Grandma Rentals

Not every kid is lucky enough to have a living grandma, and not all parents trust a teenager to babysit their children. That's where Rent a Grandma steps in. The Los Angeles–based company hooks up mature women with jobs as full-time nannies, personal assistants, pet sitters, and bakers. (But good luck getting your hands on their brownie recipes.)

Hangover Helpers

The hangover treatment cottage industry is booming! In Las Vegas, Hangover Heaven offers intravenous hydration and antinausea meds at their clinic (or ironically, aboard a moving bus). If you can't roll out of bed, Colorado's Hangover Helpers will deliver a Gatorade, cook you a breakfast burrito, and even clean up unsightly reminders of the night before.

ILLUSTRATION BY ALEX EBEN MEYER/GETTY

9 Fireworks for the Afterlife

When you die, your ashes can be transformed into diamonds, rocketed into space, and even mixed with paint for the ultimate portrait. But if you insist on going out with a bang, book your funeral with U.K.–based Heavenly Stars Fireworks. For £3,999 (around $5,500), they'll mix your ashes in "aerial shell bursts, Roman candles, multi-shot barrages, and mines." For his "blast rights," gonzo journalist Hunter S. Thompson had his remains scattershot into a brilliant firework display over his Colorado farm.

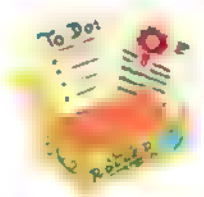
10 Lawn Colorists

If you live in Northern California and drought has turned your Kentucky bluegrass brown, don't worry about watering your lawn. Just paint it! Starting at around $250, landscaping services like Xtreme Green Grass will tint your turf with earth-friendly, waterproof dyes. And if you want to get festive during the holidays, they'll even paint your lawn white. ❁

ILLUSTRATIONS BY KATE LEE / APE & RIGHT PLACE

10 People Who Were in the Right Place at the Right Time

1. **Pilot David Zehntner** and his wife were flying their Cessna 182 over their home in 2012 when they noticed a stranger in the driveway making off with their trailer. They followed the truck for miles and called the police from the air. The hapless robber was quickly nabbed.



2. Civil War Union Corporal **Barton W. Mitchell** found an envelope on the road holding three cigars wrapped in paper. Tucked inside were orders from Robert E. Lee detailing the Confederate army's next moves. The Battle of Antietam was the result.

3. **An Indiana man** was playing an art-themed board game in 1999 when he noticed that a Martin Johnson Heade painting in the game looked like one he was using to cover a hole in his wall at home. Turns out, it was the real thing. The man sold it to a museum for more than $1 million.

4. **Dorothy Fletcher** had a heart attack on a flight to Orlando in 2003. When an attendant asked if any doctors were on board, 15 cardiologists stood up. They were en route to a conference. Needless to say, she survived.

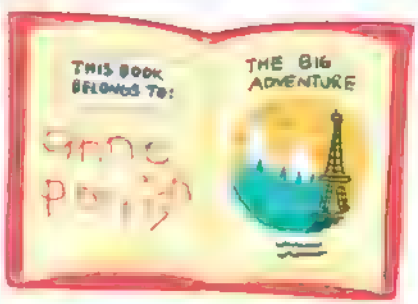
5. Despite being very dead, the tyrant **Nero** still managed to crash Napoleon's 1804 coronation. Napoleon had celebrated by releasing a balloon towing a giant crown, which floated 700 miles and landed on Nero's tomb.

6. In 1865, **Eng Bunker** was drafted to join the Union army. There was one problem: Eng had a conjoined twin, Chang, who had not been drafted. (In their youth, the duo from Siam toured as public curiosities, giving birth to the term *Siamese twins*.) Neither Bunker brother went to war.

7. When **Lewis and Clark** learned there was no water route through the Rockies, they realized they needed horses to cross the terrain. But all the horses belonged to a local Shoshone tribe, so the adventurers asked Sacagawea to broker a deal with the tribe's leader. When she arrived for the meeting, she discovered it was with her brother. The team got its horses.

8. Viking Sigurd the Mighty famously conquered northern Scotland in the ninth century. But after decapitating **Mael Brigte the Bucktoothed**, Sigurd attached the head to his saddle as a trophy. On the ride, Mael's buck tooth pierced Sigurd's leg and caused a fatal infection. Sweet revenge!

9. In 1942, Rev. Frederic Gehring found a young girl in the Solomon Islands' Guadalcanal and called her **Patsy Lee**, after the brand of hat he wore. After reading an article about her, a Singapore woman argued that Patsy Lee was her daughter who had been lost at sea—Patsy Li. A blood test confirmed that Patsy Lee was indeed Patsy Li.



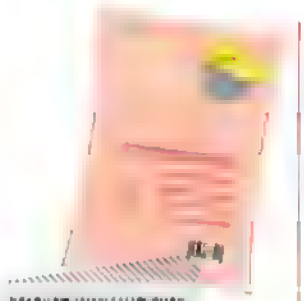
10. American novelist **Anne Parrish** was browsing in a Paris bookstore in the 1920s when she found one of her favorite childhood books. She opened the flap and saw her name scribbled inside—it was her old copy. —RUTH BEACH

The Hidden Lives of 10 Everyday Numbers

How to find meaning in the digits you see everywhere.

BY KEITH BLANCHARD

1 UNIVERSAL PRODUCT CODES



The "number system identifier" pinpoints the type of item: A 3 means health products, a 5 is for coupons.

0 22222 99999 5

Manufacturer code (Unilever owns 11111)

Item code

That mysterious twelfth digit? It's a "check digit," to prevent human and machine error.

2 INTERNATIONAL STANDARD BOOK NUMBERS

All ISBNs begin with 978, a non-entity that word nerds like to call "Bookland."

Check digit

978-4-555-88888-1

Publisher's country

Publishing company

Individual title

IN YOUR WALLET

The rest of your surname and your first name, in numeric code

Your eye color

4 DRIVER'S LICENSE*

ABBBB BBBDD EEFFG

JANE DOE

The first letter of your surname

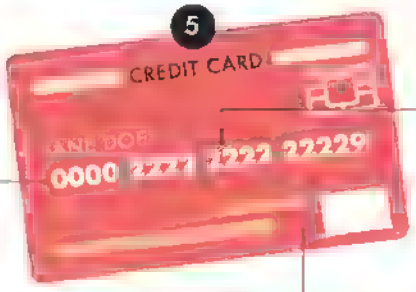
Your middle initial (A=61, B=62, etc.)

Your birth year

Your birth month and gender (men get 01-12; women, 51-62)

*THIS IS HOW NEW JERSEY DOES IT. OTHER STATES MAY DIFFER.

5 CREDIT CARD



A six-digit "issuer code" (courtesy of the International Organization for Standardization) specifies your card type. Amex, Visa, and MasterCard always start with 3, 4, or 5, respectively

The final digit aside, the rest is a unique account number

To check if a card is legit, use the Luhn algorithm: Double every other number, and add all the digits. The total should end with a 0.

6 SOCIAL SECURITY CARD

The "area number" shows where you applied for your card. (For example, North Carolina's area number is 232.) The code starts in the northeast and gets higher as you go westward.

The "group number" is a relic from the heyday of filing cabinets. It helped make organizing physical records easier

The "serial number" denotes a unique individual.

3 NFL NUMBERS

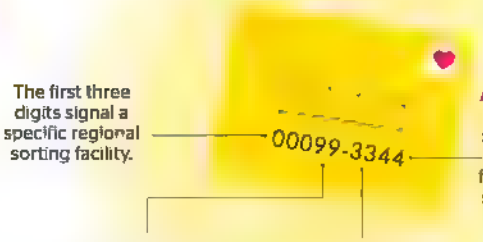
Players are numbered by position so that referees can identify the eligible receivers.

ON YOUR MAIL, ROADS, AND PHONES

ZIP CODE
KETCHIKAN, AK
99950

According to 1963's "Zone Improvement Plan" (ZIP), the lowest ZIP codes start in the northeast and increase in a winding path, running south, west, north, southwest, and north again. The last one: 99950 for Ketchikan, Alaska.

7 ZIP CODES



The first three digits signal a specific regional sorting facility.

A "delivery segment" specifying an office floor or the side of the street

The final two guide local carriers to more specific routes within that region.

A "delivery sector," like a P.O. box or a group of streets

HIGHWAY NUMBER
I-90

ZIP CODE
PORTLAND, OR
97201

AREA CODE
CHICAGO
312

ZIP CODE
HOLTSVILLE, NY
00501

HIGHWAY NUMBER
I-5

For horizontal interstates, the lowest numbers begin in the south and rise as you move north.

While interstates that connect multiple cities have one or two digits, beltways that circle cities are denoted with three digits.

AREA CODE
MANHATTAN
212

ZIP CODE
LANGLEY, VA
20505

Used exclusively by the CIA

AREA CODE
LOS ANGELES
213

HIGHWAY NUMBER
I-10

ZIP CODE
AUSTIN, TX
78703

HIGHWAY NUMBER
I-610

HIGHWAY NUMBER
I-95

For vertical interstates, the lowest numbers begin in the west and rise as you move east.

ZIP CODE
KEY WEST, FL
33040

8 AREA CODES

To help America transition from human telephone operators, Bell Labs launched three-digit area codes under the North American Numbering Plan in 1951. The Anti-Digit Dialing League tried to fight this—and lost.

On rotary phones, a 9 and a 0 took the longest to dial. Big cities were given lower area codes.

9 INTERSTATE EXIT NUMBERS

Exit numbers start at a state's southern and western edges. In some, like Vermont, the numbers climb sequentially. In others, like Idaho, they're the distance from the state border, rounded down.

10 VEHICLE IDENTIFICATION NUMBER

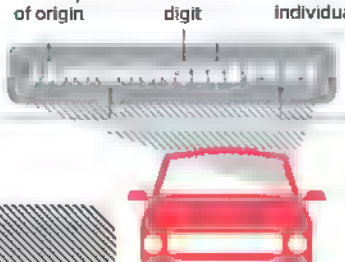
A vehicle description, sometimes indicating model and engine size

Country of origin

Check digit

A serial number for individual cars

These digits mark the model year and car's plant.



10 TIMES CONNECTING THE DOTS WENT AWRY

It's a scientist's mantra: Correlation does not imply causation. But sometimes wrong feels so right.

BY **MAGGIE KOERTH-BAKER**

1 Eat enough chocolate and you'll win a Nobel

If you want to boost blood flow to your brain and (potentially) slow cognitive decay, consume flavanols. The plant compounds, found in green tea and cocoa, are great for getting blood into your noggin. That made New York doctor Franz Messerli wonder: Would a nation of bonbon-eaters be more intellectually accomplished than a country that didn't consume as much cocoa? In a tongue-in-cheek 2012 paper published in *The New England Journal of Medicine*, he found that countries that ate a lot of chocolate also won the most Nobel Prizes. Messerli published the study with a wink, but some media outlets took the news seriously, failing to see that a confounding variable was at play—wealth. A richer country (like Switzerland, which has 26 Nobel winners) will have more quality scientific research—and well-stocked shelves of chocolate, too.

2 The night-light biz is in cahoots with your ophthalmologist

Nearsightedness has been increasing worldwide for decades. In some Asian countries, up to 90 percent of adults can't see distant objects clearly, and in 1999, researchers at the Children's Hospital of Philadelphia thought they'd found the cause: night-lights. The evidence suggested that kids who slept with a light developed myopia later in life. But two groups of researchers argued that the study failed to see the evidence in front of its nose—myopic parents have myopic kids. And myopic parents, who can't see well in the dark, are more likely to install night-lights in their children's rooms.

3 Black cats are so unlucky, they'll give you allergies

Are black cats bad luck for your sinuses? In a January 2000 paper for the *Journal of Allergy and Clinical Immunology* researchers found that people with dark-colored cats suffered more allergic reactions than owners of light-colored cats (or no kitty at all). But the correlation appears to have just been a coincidence. Cat allergies are actually caused by a protein called Fel d 1, which is produced in salivary and sebaceous glands. A research team in New Zealand found that cat allergies simply aren't related to cat color or hair length.

4 Forget about apples: Head lice keeps the doctor away

For centuries, natives of the New Hebrides Islands considered a head full of lice a sign of good health. "Observation over the centuries had taught them that people in good health usually had lice and sick people very often did not. The observation itself was accurate and sound," writes Darrell Huff in *How to Lie with Statistics*. But the correlation didn't mean lice are the key to good health—it's the other way around. Healthy people had lice because their body was just the right temperature, a perfect home for bugs. But when people ran a high fever, their flesh became hot, sending the lice scattering. Lice didn't cause good health—they preyed on it.

5 Serving breakfast will boost your child's report card

We've all heard that kids who eat breakfast do better in school. It makes sense: It's hard to focus on an empty stomach. But despite their best attempts, researchers haven't been able to pinpoint *why* breakfast aids learning—if that's even the case. A 1996 study of Jamaican students found that, in some schools, kids behaved better after they ate breakfast; in other schools, they acted worse. The gap probably had more to do with each school's resources than with a student's daily ration of Cocoa Puffs. Students at well-equipped schools behave better regardless of their diet.

6 Storks and babies are inextricably intertwined

Storks do not deliver babies. That bit of German folklore likely originated because the white stork's migration rituals last nine months. (Plus, Hans Christian Andersen helped popularize the myth in his short story "The Storks.") But that hasn't stopped scientists from acknowledging a striking correlation: Between 1970 and 1985, the number of breeding pairs of white storks in Lower Saxony dropped. Over the same period, the birth rate there also fell. Meanwhile, stork numbers increased in Berlin's suburbs, where doctors delivered more babies. As Robert Matthews writes in *Teaching Statistics*, "While storks may not deliver babies, unthinking interpretation of correlation can certainly deliver unreliable conclusions."

7 If you're a diehard fan, losing the Super Bowl will literally kill you

Hours after the Seattle Seahawks lost the Super Bowl in 2015, fan Michael Sven Vedvik died. In his obituary his family blamed the team's "lousy play call for Mike's untimely demise." The joke echoed 2011 research in *Clinical Cardiology* linking Super Bowl losses to a 15 to 27 percent increase in cardiac deaths in the loser's hometown. (The Grim Reaper *has* tried wearing cleats at least once: When the Steelers' Jerome Bettis fumbled in a 2006 playoff game, a fan watching from a bar became so upset that he had a heart attack. Fortunately, he survived.) Problem is, the studies don't take non-football variables into account. And the data in one study investigated deaths that occurred two weeks after the game. "I don't think that everyone who dies within 14 days of the Super Bowl died *because* of the Super Bowl," David Prince of Albert Einstein College of Medicine told Live Science.

8 Employed? Thank your overpriced grocery store

In 1958, economist William Phillips published a paper claiming that when

unemployment increased, inflation decreased (and vice versa). "That led nations to start thinking of these two variables as trade-offs," says Rebecca Goldin, professor of math at George Mason University and director of the website Sense About Statistics. "Some would focus on unemployment while others focused on controlling inflation, but they all saw this as a causal trade-off." Then came the 1970s, when many countries saw both high inflation and high unemployment. Turns out Phillips's "rule" was just a short-term coincidence. While inflation can affect unemployment for short periods, it can't fix joblessness over the long run.

9 Lonely people keep the spa industry rolling in the dough

In Scandinavia, people fight the cold of winter with cozy candlelit social gatherings. Called *hygge* in Denmark and *koselig* in Norway, the tradition suggests there's a connection between physical temperature and the "social warmth" of friends. In 2011, Yale researchers suggested that people may instinctively reach for that connection in the shower. In a study, they found that lonely people were more likely to take long, warm showers and baths. Was it because higher temperatures make them feel less isolated? Well, the methodology left critics cold. The study used a small sample (only 51 undergrads); of those, 90 percent reported bathing or showering less than once a week. Not exactly a trusty sample. In 2014, a different team tried to replicate the results using a larger (and presumably better-smelling) group, and failed.

10 The Pope should pray for the Welsh rugby team ... to lose

According to the 2008 study "Rugby (the Religion of Wales) and Its Influence on the Catholic Church," the Pope is more likely to die when the Welsh rugby team wins the sport's Grand Slam. The paper—which appeared in the *British Medical Journal*'s humorous annual Christmas issue—found no connection between the pontiff's mortality and teams from other countries. Just Wales. We expect a Dan Brown book about this any time now.

10 Not Entirely Accurate Predictions

1.

"The Second Day of July 1776, will be the most memorable [date] in the history of America ... I am apt to believe that it will be celebrated, by succeeding generations, as the great anniversary festival."

—JOHN ADAMS, JULY 3, 1776

2.

"[France] will, within two or three years, be in the enjoyment of a tolerably free constitution ... without its having cost them a drop of blood."

—THOMAS JEFFERSON, BEFORE THE FRENCH REVOLUTION, 1788

3.

"Who the hell wants to hear actors talk?"

—HARRY M. WARNER (OF WARNER BROS.), 1927

4.

"Louis Pasteur's theory of germs is ridiculous fiction."

PIERRE PACHET, PROFESSOR OF PHYSIOLOGY AT TOULOUSE, 1872

5.

"A rocket will never be able to leave the Earth's atmosphere."

NEW YORK TIMES EDITORIAL, 1920

6.

"X-rays will prove to be a hoax."

—LORD KELVIN, PRESIDENT OF THE ROYAL SOCIETY, 1890S

7.

"Computers in the future may have only 1,000 vacuum tubes and perhaps weigh only 1½ tons."

—*POPULAR MECHANICS*, 1949

8.

"Everyone's always asking me when Apple will come out with a cell phone. My answer is, 'Probably never.'"

—*NEW YORK TIMES* TECH COLUMNIST DAVID POGUE, 2006

9.

"Stock prices have reached what looks like a permanently high plateau."

IRVING FISHER, PROFESSOR OF ECONOMICS AT YALE UNIVERSITY, 1929

10.

"This 'telephone' has too many shortcomings to be seriously considered as a means of communication. The device is inherently of no value to us."

—WESTERN UNION INTERNAL MEMO, 1876

—JEFF WILSER

10 Times $10 Changed It All

Never scoff at the life-altering power of a single Hamilton.

BY **JEFF WILSER**

A Movie Franchise

In the early 1980s, a producer named Gale Anne Hurd bought the rights to an unknown movie for $1. The movie was *The Terminator*, directed by James Cameron, whose only feature at the time was *Piranha Part Two: The Spawning*. He's regretted the deal ever since.

A House

The U.S. Department of Housing and Urban Development has a program called the Dollar Home Initiative. It's not a gimmick: When single-family homes go into foreclosure, the Federal Housing Administration tries to sell them. If they can't book a sale with in six months, they make them available to low-income families for just $1.

A Whole New Look

Stand-up comic Sara Blakely was irritated by the white pants in her closet. "Every time I went to put them on, I had issues," she said. Instead of using them as a comedy bit, she tackled the problem. She took scissors ($1.99) to pantyhose ($2.49) and cut off the feet. Then she slipped on the slacks over the hose. The result: finally getting to wear her pants without unsightly lines, and a new invention—Spanx.

A Kick in the Pants

When Stephen Dubner first moved to New York City, he spent $10 on a copy of *Ring*, Jonathan Yardley's biography of sportswriter Ring Lardner. "I somehow persuaded me that I too could make it as a writer in New York," he said. Since then, Dubner's *Freakonomics* and *SuperFreakonomics* have sold more than seven million copies.

A Happier Holiday

Every Christmas, Byron Reese's parents gave him letters from Santa. When he grew up, he realized he could pay it forward. In 2002 he started writing customized letters (paper and pen: $1.99) as the big guy up north. Parents gave him the kids' names and ages, and he took care of the rest. He sold 10,000 in the first year and is now a jolly millionaire.

A Financial Career

When Robert Kiyosaki was a kid, he and his brother played *Monopoly* with their dad, who doled out financial advice as they rounded the board. Kiyosaki purchased his own *Monopoly* game for 50 cents at a church flea market, and in sixth grade, started a Monopoly Club, where he gave his classmates money tips. His *Rich Dad Poor Dad* book series, which builds off that advice, has sold over 26 million copies.

A Moonshot Bet

Anyone can buy a lottery ticket. But not everyone has the vision of David Threlfall, who in 1964 wrote a letter to the British betting company William Hill proposing a simple wager: Would they give him odds on a person walking on the moon in the next seven years? They did—1000:1. He put down 10 British pounds. His 10,000-pound payday made history.

A Beloved Lemonade Brand

Brooklynite Seun Abolaji was visiting his brother in Nigeria when, thirsty, they picked up some citrus and a plastic juicer ($10 USD) to make a refreshing drink. When a local asked what they were doing, they sold him a cup of lemonade—a novelty in the country. Wilsons Juice now sells bottled lemonade across six states of Nigeria.

A Pile of "Nevermores"

In 1845, a desperate young writer, using the pseudonym "Quarles," had a poem to sell. He found a buyer in *The American Review: A Whig Journal of Politics, Literature, Art, and Science*. They paid him $9. The poem was immediately reprinted across the nation, 10 times in just the first month. "Quarles" was Edgar Allan Poe. The poem? "The Raven."

A Surprise

Clearly $10 can get you pretty far. But what if you just left it up to fate? That's what's on offer at Something Store (somethingstore.com), where—for $10—they'll send you ... something. Recent customers have received a necktie or a Kindle tablet, or a heated ice scraper. The package is always worth at least $10—though that's really in the eye of the beholder.

ILLUSTRATION BY ALEX EBEN MEYER

10 WAYS THE BICYCLE MOVED US FORWARD

How two little wheels spun a revolution in dating, fashion, medicine, and space travel.

BY **JULIE WINTERBOTTOM**

1 It revolutionized how people hook up, a century before Tinder

When bicycle prices dropped in the 1890s, people of modest means could afford their own transport for the first time. The effect on romance was profound. Long-distance courtships were possible. People could date outside their parishes, which, according to British geneticist Steve Jones, widened the gene pool, making the bicycle "the most important event in recent human evolution."

2 It showed the world that African Americans belonged

Fifty years before Jackie Robinson broke baseball's color barrier, Marshall "Major" Taylor was a star of professional track racing, which at the turn of the 20th century was the most popular sport in America. Taylor won his races with bullet-like bursts while fending off attacks from white riders. He outrode them with quiet defiance, setting seven world records.

3 It gave us the nation's first paved highways

Country roads of the 1890s were the stuff of nightmares, or, as *The New York Times* put it, "a morass in Spring, a Sahara in Summer ... frozen stiff in later Autumn, and a slough whenever there is a thaw in Winter." Urban roads—many of which were covered in wood—were smoother, but cyclists wanted asphalt. They got their wish via the League of American Wheelmen, which used its 100,000-plus members to agitate for the nation's first state-funded paved roads in 1898.[1]

4 It demonstrated that space is safe for astronauts

In 1973, the Skylab space station crew became the first people to pedal in space (on stationary bikes). In previous trips,

[1] After Washington, D.C., paved 45 miles of its roads, one writer gushed in 1897 they were "to the bicycler what the golden streets of New Jerusalem are to the angels."

ILLUSTRATION BY KATE AREY

voyagers experienced changes in heart rate and blood pressure, and scientists wanted to know how zero gravity affected the cardiovascular system, especially during heavy exertion. After collecting data over 171 days, the scientists concluded it was safe for astronauts to work in space for extended periods of time.

5 It emancipated women from the home (and their wardrobe)

The cycling craze hit America in the 1880s, prompting women to break with Victorian-era mores by leaving their homes, alone to pedal down streets—unchaperoned! Not only did women love the freedom, they loved the dress, ditching heavy skirts for bloomers to work the pedals.

6 It helped hundreds of Jews escape the Holocaust

When Gino Bartali returned to Italy after his 1938 Tour de France win, he was expected to dedicate the honor to Mussolini and support the fascist regime. Instead, he harnessed his talents for the Resistance. Bartali helped Jews escape the country carrying counterfeit identity papers in the frame and handlebars of his bicycle on "training rides." If stopped by police for search, he'd ask them not to touch his "specially calibrated" bicycle. Bartali eventually went into hiding, but by then, he had cycled thousands of miles to help hundreds escape.

7 It brought life-saving cinema to people in remote places

In 2013, a charity wanted to screen educational films in Malawi to spread info on HIV prevention, modern farming, and other issues. But most villages lacked electricity or gas for a generator. Enter Colin Tonks of Electric Pedals, who built a pedal-driven cinema that fits in two backpacks and weighs less than 40 pounds—perfect for toting to remote spots.

8 It created the perfect urban ambulance

In 1993, London ambulance driver Tom Lynch was stuck in traffic on his way to a call when he started thinking about how much faster he could get there on a bike. Soon he was doing just that. In 2000, he started a bike ambulance unit that now handles thousands of calls a year. The bicycle EMTs cart a siren and a medical kit, and can handle most emergencies, freeing ambulances for other calls.

9 It provides cheap, clean power for local economies

Carlos Marroquin was working as a bus driver in Guatemala in 1997 when he noticed people tinkering with old bicycles by the side of the road. He learned they were building *bicimáquinas*—pedal-powered machines for pumping water and doing other jobs that take hours by hand. The group hired him, and he later founded Bici-Tec, where his bicimáquinas have turned day-long water-pumping pursuits into tasks that take just minutes.

10 It helps alleviate symptoms of Parkinson's disease

In 2003, biomedical engineer Jay Alberts was on a high-effort weeklong tandem ride with a friend who has Parkinson's when the friend's symptoms nearly disappeared. Alberts then studied a group of Parkinson's patients who rode at an intense 80-90 rpm clip on a tandem bike, and had a 35 percent improvement in symptoms. Intense exercise can't cure the disease, but it can temper it.

10 CRIME-FIGHTING TRICKS THE BAD GUYS DIDN'T SEE COMING

MAGGIE KOERTH-BAKER

1 Stopping terrorism with cupcakes Back in 2010, would-be terrorists could download *Inspire*, a magazine produced by al-Qaeda. The publication ran essays on betraying America, interviews with leading jihadis, and DIY guides to crafting homemade explosives. But when readers opened the article "How to Make a Bomb in the Kitchen of Your Mom," they found a list of cupcake recipes previously published by *The Ellen DeGeneres Show*. (British intelligence forces took credit for the ruse.) That wasn't the only time terrorists got "cupcaked." In 2001, reporters in Kabul combing through debris left by the Taliban found so-called plans for a thermonuclear bomb. The text came from a 1979 piece in the humor magazine *Journal of Irreproducible Results*. Step 1: "First obtain about 25 pounds of Plutonium 239 at your local supplier."

2 Curbing public urination with religious guilt While wandering through South Delhi, India, in 2014, Ranjani Iyer Mohanty noticed something odd: exterior walls and fences, adorned with Hindu deities. Was it an expression of piety? A celebration? Nope. The gods were there to watch you pee. Specifically, as Mohanty revealed in an article for *The Atlantic*, locals were using the images to discourage men from urinating on walls. In some places, the images were multicultural, with depictions of Jesus as well as Sikh iconography. Whether it worked, God only knows.

3 Fighting crime with waterfowl Geese and swans are surprisingly fierce! Just take a look at their bills—full of serrated toothlike ridges called tomia—and you'll see why. In fact, the birds may be better than guard dogs: They're loud, aggressive, and not friendly to strangers. In June 2013, a man tried to break into a police station in the northwestern Chinese province of Xinjiang, hoping to steal back his confiscated motorbike. He poisoned the guard dog, scaled the compound wall, and was met by 20 geese initially kept around for meat and eggs. They began to honk, flap, and raise the alarm. Guard geese are now being trained throughout the province.

4 Assaulting bad guys with obnoxious beats The United States military used hair metal to drive Panamanian dictator Manuel Noriega out of his hideout in 1989. FBI agents leaned on Nancy Sinatra and super-cheesy Christmas carols during the Branch Davidians standoff in Waco, Texas, in 1993. More recently, however, British Merchant Navy vessels needed something stronger to stop the Somali pirates who got too close to their ships. So sailors mixed their bullets with some Britney Spears. While the pirates probably found the gunfire battle more toxic than "Baby One More Time," the footage definitely makes for one of the strangest music videos you'll ever see.

5 Curbing distractions with panhandlers Every city has homeless people. And some of those folks will panhandle where they are likely to be seen (and helped) by drivers, like intersections and highway off-ramps. But police in Ottawa, Canada, noticed how drivers had stopped paying attention—tuning out the homeless in their midst. Cops took advantage of the situation, dressing in shabby clothes by roadways, carrying signs with messages like "My name is Constable Jesty. If you are on a cell phone, you are about to get a ticket. God bless." In 2012, when *The Ottawa Sun* tagged along, the undercover cops ticketed 10 drivers in less than an hour.

6 Preventing crime with fake cops In some parts of India, the UK, and the United States, the cop on the block is more like a scarecrow in a cornfield. Life-size cardboard police cutouts are stationed at busy intersections where drivers don't obey traffic rules, gas stations prone to fuel theft, and public transit stops where bikes are frequently stolen. The idea is that the sight of a cop, even one you know is fake, might make you think twice about breaking the law. Success is decidedly mixed: In Cambridge, Massachusetts, a cardboard cop has reduced bike thefts—but in Bangalore, India, the cutouts were just stolen.

7 Reading minds with sci-fi Moscow scientists created a system they say can screen airline passengers' thoughts and spot malicious intent—before anyone sets foot on the plane. In 2007, *Wired* reported that the Russian lab Psychotechnology Research Institute had landed a contract with the Department of Homeland Security. The Semantic Stimuli Response Measurements Technology starts with a person being shown a series of images flashing quickly—too quickly for that person to consciously see what they depict. Hypothetically, the terrorist would register an image of Abu Bakr al-Baghdadi, even if his face flashed onscreen for just a moment. Security agents could monitor the subject's responses to the images and understand what the person was thinking about. Sound crazy? It probably is.

ILLUSTRATIONS BY ALEX EBEN MEYER WITH S. PAGE AND PHENOMJ

8 Solving murders with microbes Meet the crime fighters of the future: your microbiome. That's the name for the special community of microbes that colonize your body—inside and out. Each person's microbiome may be more unique than a fingerprint, and it could help investigators identify victims and perps. How? "Humans colonize new living spaces with their own personal bacterial stamp within just a few hours," reports Rachel Feltman of the *Washington Post*. In the future, investigators could ID criminals by finding this microbial footprint at a crime scene. While that technology is far off, researchers are now trying to use microbiomes to identify a victim's time of death. Since microbiomes change after a person dies, decoding them may allow investigators to determine when a murder took place.

9 Using robbers to protect homes Forensic psychologist Claire Nee spent 20 years studying the "dysfunctional expertise" of criminals—i.e., the illegal skills that help them ply their trade. During her study, she learned that burglars always eyeball valuables to discern how much items are worth, even when they're off the job. The result is an immediate sense of objects' cost. (Think the sharp instincts of a top *Price Is Right* contestant, but for expensive jewelry instead of dish soap and mops.) In 2014, she decided to follow subjects as they "worked," letting six burglary offenders and six graduate students rob a staged house. The two groups operated very differently. The real-life criminals spent more time in the house, and though they nabbed fewer and smaller items than their counterparts, on average, their hauls were worth $1,500 more. Nee's research isn't just teaching police how criminals think, it's also teaching scientists how practice turns to skill, and how skill then evolves into unconscious and automatic behavior. These are lessons that apply to chess players and athletes just as much as they do to burglars.

10 Stopping hijackers with a Rube Goldberg machine Remember James Bond's tricked-out Aston Martin, which had secret buttons that left oil slicks and nails on the highway or triggered an ejector seat? In 2005, Wolfgang Gleine patented a design for an airplane terrorism defense system that would bring similar tricks to the skies. Features include gas jets that fill the cabin with fog (cough), high-intensity lights to blind assailants (and, unfortunately, everybody else), and tranquilizer dart guns that can be operated either manually or through an automated system that (somehow) evaluates whether someone is a terrorist or just a passenger trying to go to the restroom. Manage to escape all those defenses and you face Gleine's best idea yet: a trapdoor. The floor outside the cockpit can open, dropping the bad guy into a holding cell below. Beats flying coach. ❁

die I want to
GET
die I want to
Learn
die I want to
Create
die I want to
HAVE
I want to

ROLE MODEL

CANDY CHANG

In this artist's hands, public spaces become interactive self-help stations.

BY **JEN DOLL**
PHOTOGRAPHY BY **CARY NORTON**

I had a meandering path. When I was young, I was jealous of single-minded people who knew what they wanted to be. I was embarrassed of my uncertainty. I always liked to make things, but I wasn't sure what exactly. I studied architecture, graphic design, and urban planning. I designed things, ran a record label, made street art, worked at *The New York Times*, worked with community groups around the world. I wouldn't be doing what I do today if it wasn't for all of those disparate experiences mingling together.

The "Before I Die" project will always resonate with me. I made it in my neighborhood in New Orleans after I lost someone I loved and went through a period of depression. This was the first time I channeled my emotional questions into my work. The project grew despite me. I just posted a few photos online and it spread, and I spent a long time providing resources for people who wanted to make a wall with their community. Now "Before I Die" walls have been created in over 70 countries.

I'm interested in the anatomy of cities and how common spaces can help us make sense of our lives. Many conflicts in our communities come from a lack of trust and understanding: It's easy to be angry when you don't know your neighbor. The design of public spaces can play a profound role in helping us lower our guards, be honest and vulnerable, and restore perspective.

I had been to many community meetings where the "voice" of the community ended up being the loudest people in the room. It made me wonder how the quieter people, like me, could share just as much as the loud ones. Participatory public art projects allow people to chime in on their own time. I also like the built-in audience with public art. If I needed to invite people to a singular event, I would worry about whether anyone would show up.

My experiences with grief, depression, and personal confusion became the fuel for a lot of my experiments. I'm interested in ways to improve my mental health. One tool that's helped me is the *I Ching*, which I translated into a modern device for philosophical reflection called "The Atlas of Tomorrow." It went up in Philadelphia this spring—it's a three-story mural with a dial that passers-by can spin to select one of 64 fable-like guides to help them contemplate their lives and to help destigmatize discussion around mental health. It's made up of thousands of dots along the wall, each one around the size of a dime. The whole thing is finger-painted.

I make a living through speaking engagements, which allows me to make public art. When I'm not traveling, I start my day with a swim and a schvitz at the New Orleans Athletic Club, one of the oldest gyms in the country. It has a lovely, dignified indoor swimming pool. I love slow, graceful freestyle swimming. I also like to just float in the middle of the pool and stare at the skylight.

I go in and out of work during the afternoons and evenings, making collage, researching, reading, writing, painting, updating online things, developing talks, and beyond. I try to stay away from email in the morning. I feel better when the first few hours of the day don't involve unexpected distractions. I write "morning pages"—stream-of-consciousness writing about my dreams and thoughts and experiences—every day, and I always have a pile of current books of interest that I splay out on the floor. When I'm pursuing a public art idea, I make mood boards and brainstorm all the ways it could work.

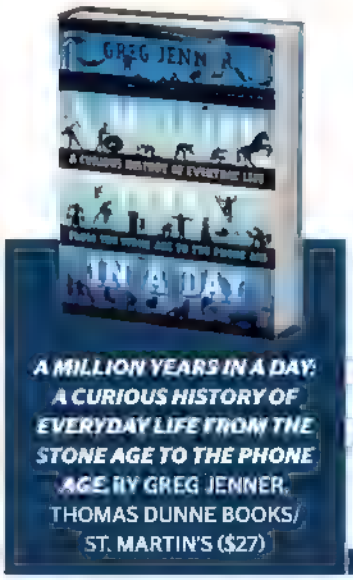
I'm enraptured by individuals who spend a lifetime making one public art project, like "Forevertron" by Dr. Evermor in Wisconsin, "Salvation Mountain" by Leonard Knight in the California desert, and the "Magic Gardens" by Isaiah Zagar in Philadelphia. I want to see more, including "Palais Ideal" by Ferdinand Cheval in France. He was a mailman who picked up stones during his daily mail route and used them to build this incredible, surreal palace in his yard over the course of 33 years. It's very poetic and inspiring, especially for someone with a short attention span.

I've always loved taking road trips through the American desert. Someday I'd like to make a library in the desert. Perhaps that will be my lifelong public art project. A death library in Death Valley.

This interview has been condensed and edited.

SPEED READ

7 Essential Sentences About *DAILY ROUTINES, THROUGH HISTORY*



A MILLION YEARS IN A DAY: A CURIOUS HISTORY OF EVERYDAY LIFE FROM THE STONE AGE TO THE PHONE AGE BY GREG JENNER, THOMAS DUNNE BOOKS/ ST. MARTIN'S ($27)

1 For Babylonians, the "new day" started at dusk, right before they went to bed. This was picked up by the ancient Greeks, Celts, Germanic tribes, and medieval Italians (they called the system "The Florentine Reckoning").

2 The Victorian *velodouche* was a pedal-powered shower unit attached to a bicycle. It only gushed water when you started pedaling.

3 It's not just you: The ancient Romans loved pork sausages as well as bacon (they called it *petaso*), and served it with figs, wine, and pepper.

4 The T-shirt evolved from the white flannel nightshirts worn by 19th-century American sailors. (It became regulation wear in the U.S. Navy in 1913.)

5 In 1907 William Willett published a pamphlet arguing for a new concept: Daylight Saving Time, achieved by setting clocks forward by 20 minutes on each of the four Sundays in April.

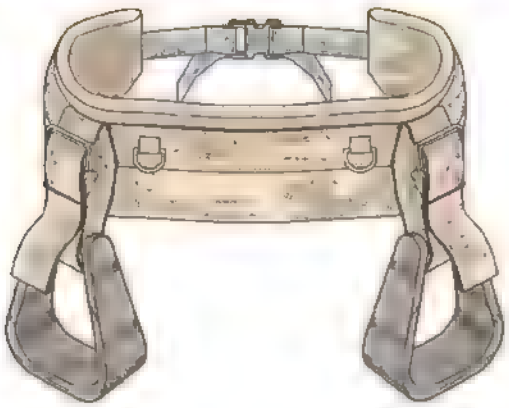
6 Henry VIII employed a "Groom of the Stool," who inspected the king's droppings for subtle clues of ill health. The job paid handsomely, and was quite prestigious.

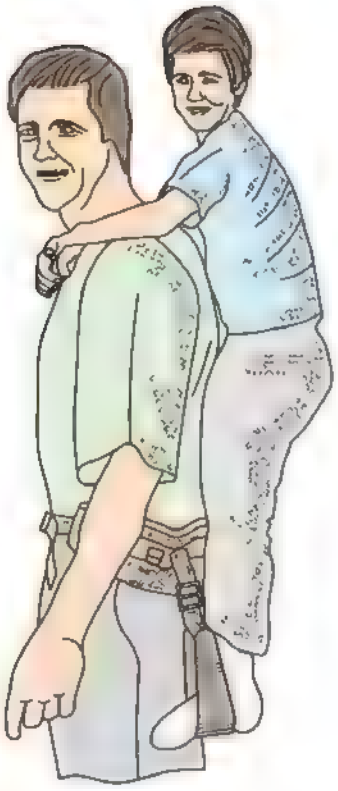
7 The renting of the family bed—meaning paid guests would share with Mom, Dad, and kids—was common in colonial America in the 1600s. They called it *bundling*.

PATENTLY ABSURD

The Dad Saddle

Patent: # US 6241136 B1 | **Published:** June 5, 2001





Attention, parents: Are your kids bored with the same old piggyback routine? Are you sick of getting sticky fingers in your hair every time you let them hitch a ride? Try the Dad Saddle. Paul R. Harriss, the inventor of this parental paraphernalia, noticed that while contraptions—from ergonomic backpacks to simple scarves—exist to help parents carry their babies, once the kids grow up, you're forced to go bareback. Suffer no more! The Dad Saddle's sturdy harness fastens around the waist and sports two pint-size stirrups for a child's feet, "virtually eliminating the possibility of back strain." Adjust the height of the stirrups so your little cowboy or cowgirl can hold steady. Then remind them to tip their hats before they tackle the open range.

WHAT TO WATCH

4 REVELATORY DOCUMENTARIES

1

ROCK AND A HARD PLACE

Dwayne Johnson was arrested eight times before he was 16. Now he hosts this documentary about incarcerated youth who have the chance to trade extensive sentences for a fresh start—if they can make it through the rigorous Miami-Dade County Corrections and Rehabilitation Boot Camp Program.

Premieres on HBO in May.

2

TONY ROBBINS: I AM NOT YOUR GURU

What does it take to inspire millions? To find out, filmmaker Joe Berlinger shadowed motivational speaker Tony Robbins for six days over the course of his seminar "Date With Destiny"—an annual mega-seminar attended by thousands of people.

Premieres on Netflix July 15.

3

JANIS: LITTLE GIRL BLUE

Documentarian Amy Berg spent seven years working on this film about Janis Joplin, who died in 1971 at the age of 27. Using Janis's own letters (read by the musician Cat Power), interviews with friends, and newly discovered footage, Berg unspools the story of a talented, emotionally complex performer.

Premieres on PBS in May.

4

THE LOVERS AND THE DESPOT

The narcissistic dictator was also a cinephile: Kim Jong-il once kidnapped a famous movie star and her filmmaker ex-husband to produce high-brow propaganda films. This documentary—part love story, part absurd political drama—spotlights the bizarre tale.

Theatrical release in 2016.

A: AMY JOHNSON ROBBINS JOSEPH JUNG

POP CULTURE SYLLABUS

THE GOLDEN GIRLS

GOLDEN GUESTS

In his 30 years hosting *The Tonight Show*, Johnny Carson had all four of the Golden Girls on as guests (though never at the same time). Even Estelle Getty, who often froze in front of *The Golden Girls*' live studio audience, took a turn. When Carson handed the show over to Jay Leno in 1992, it was TV's second most tearful goodbye of the year. The first? The last episode of *The Golden Girls*, which ran 12 days earlier.

VISIT *Here's Johnny: The Making of the Tonight Show Starring Johnny Carson*, at the Museum of Broadcast Communications, Chicago

SAY CHEESE

Cheesecake was invented by the ancient Greeks, and given to athletes at the first Olympic games in 776 BCE. When the Romans invaded Greece in the 2nd century BCE, they called it *placenta* (the organ is named after the dessert) and carried the recipe all the way to the British Isles. The New York–style cheesecake the Girls ate regularly in their Miami kitchen was the result of a dairy surplus in New York

THE PAPER TRAIL

7 THINGS TO READ RIGHT NOW

BRAIN CANDY

The Illustrated Compendium of Amazing Animal Facts by Maja Säfström (Ten Speed Press, $15)

This adorable book is full of fascinating facts (crocodiles shed tears when they eat, goats have different accents depending on where they're from) and charming illustrations (a page of penguins!).

Dad Magazine by Jaya Saxena and Matt Lubchansky (Quirk Books, $16)

One of many dad facts from this book: When a *Washington Post* critic called Harry Truman's daughter a bad singer, he replied, "Someday I hope to meet you. When that happens, you'll need a new nose."

Sweet as Sin by Susan Benjamin (Prometheus Books, $18)

Everyone wants to be a candy historian when they grow up. Benjamin actually is one. This sweet history is packed with delicious tidbits, like the time Charlie Chaplin had a licorice shoe made so he could eat it on film.

The Selected Letters of Laura Ingalls Wilder by William Anderson (Harper, $27)

Little House author Wilder penned hundreds of letters to her readers, family, and colleagues. "I intend to try to do some writing that will count," she once wrote to her husband.

A Burglar's Guide to the City by Geoff Manaugh (FSG Originals, $16)

Two thousand years of break-ins prove truth is more diabolical than fiction. Take George Leonidas Leslie, who built models of his targets and disguised his burglar team in outfits stolen from an opera company.

State in the 1870s, which inspired the invention of cream cheese, cheesecake's key ingredient. (Don't tell Dorothy, but cheesecake is officially classified as pie.)

READ *Cake, a Slice of History*, by Alysa Levene

MIAMI NICE

When *The Golden Girls* first aired in 1985, it was part of a revolutionary wave of family sitcoms whose families were decidedly nontraditional (*Cheers*, *Kate & Allie*). NBC head Brandon Tartikoff came up with the title *Miami Nice*, found writers, and turned a joke into a critical hit—one of only four shows to earn an Emmy for each of its main stars. This book reveals how casting for a "Bea Arthur type" got them Arthur herself (thanks to some arm-twisting by her *Maude* co-star Rue McClanahan), why indie rock star Jenny Lewis made a guest appearance at age 11, and why so many celebrities still can't get enough of the show.

READ *Golden Girls Forever: An Unauthorized Look Behind the Lanai*, by Jim Colucci

AND ONE NOT-SO-GOLDEN GIRL

When sculptor Frederic Auguste Bartholdi designed the Statue of Liberty, he intended her to be gold. But Americans, who barely raised the $270,000 needed to build a pedestal for the French "gift," weren't about to spend any more cash. She stayed copper until oxidation turned her patina completely green. Today, only her torch's flame has a 24-karat gold coat.

WATCH Ken Burns's *The Statue of Liberty*

When Hitler Took Cocaine and Lenin Lost His Brain
by Giles Milton
(Picador, $16)

Did you know that Hitler was on as many as 80 drugs when he invaded Soviet Russia (including meds for his chronic flatulence)? Now you do—even if you wish you didn't.

All the Single Ladies
by Rebecca Traister
(Simon & Schuster, $27)

For the first time in history, single women outnumber their married counterparts. In this social history, Traister examines how a new generation of women are shifting the dynamics of politics and culture.

ALAMY (GOLDEN GIRLS); SHUTTERSTOCK (SHRIMP)

HOT DATE!

During World War II, the noise from snapping shrimp colonies in the Atlantic was loud enough (up to 210 decibels!) to throw off submarine detecting sonar.

THE QUIZ

1 Scientists recently outfitted praying mantises with what?
- A 3-D glasses
- B Robo-wings
- C Brain implants
- D Miniature inline skates

2 Medieval craftsmen rested their eyes by staring at what?
- A The sun
- B Emeralds
- C Bowls of sand
- D Jars of glass eyes

3 Researchers recently named a new species of spider after which musician?
- A Johnny Cash
- B Stevie Wonder
- C Eartha Kitt
- D Madonna

4 Which was used as currency during the Tang dynasty?
- A Tea
- B Jade
- C Poetry
- D Chalk

5 The scholar Muhammad ibn Musa al-Khwarizmi introduced what to Europeans?
- A Sailing
- B Gliding aircraft
- C Algebra
- D Saffron

6 In heraldry, blue symbolizes what?
- A Fidelity
- B Fear and loathing
- C Chivalry
- D Infidelity

7 In 1471, a Swiss ____ was burned at the stake for sorcery.
- A Goat
- B Alphorn
- C Wheel of cheese
- D Chicken

8 In 1946, activist Stetson Kennedy discovered top-secret KKK passwords. What did he do with them?
- A Put them up on billboards around town
- B Sent them to writers of the Superman radio show
- C Used them to bust local politicians involved with the group
- D Sent them to *The National Enquirer*

9 Architect Thomas Wilson wanted to house 5 million of London's dead in a what?
- A Giant pit
- B 90-story pyramid
- C Translucent geodesic dome
- D Underwater mausoleum

11 Researchers at the University of Cambridge found you can arrange 128 ____ in 10 unquadragintilliard ways.

- A Jenga blocks

- B Tennis balls

- C Tetris blocks

- D Legos

ANSWERS
1. C
2. B (Pliny the Elder wrote that emeralds treated "weariness and lassitude.")
3. A (*Aphonopelma johnnycashi* wears all black and lives near California's Folsom Prison.)
4. A
5. C
6. A
7. D (The bird resembled a rooster and was condemned for the "heinous and unnatural crime of laying an egg.")
8. A (They help scientists study stereoscopic vision in invertebrates.)
9. B (The writers injected them into episodes in which Superman battles the Grand Dragon.)
10. B
11. B (That number 10^{250}, exceeds the number of particles in the universe!)

YOUR SCORE!

0-3	Pretty Good
4-6	The Best
7-9	The Worst
10-11	Also Pretty Good

STOCKMAN BUN PONY CHOCOLATE ZOMBIES

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SHOW US
YOU'VE GOT
Game

JUNE 2016

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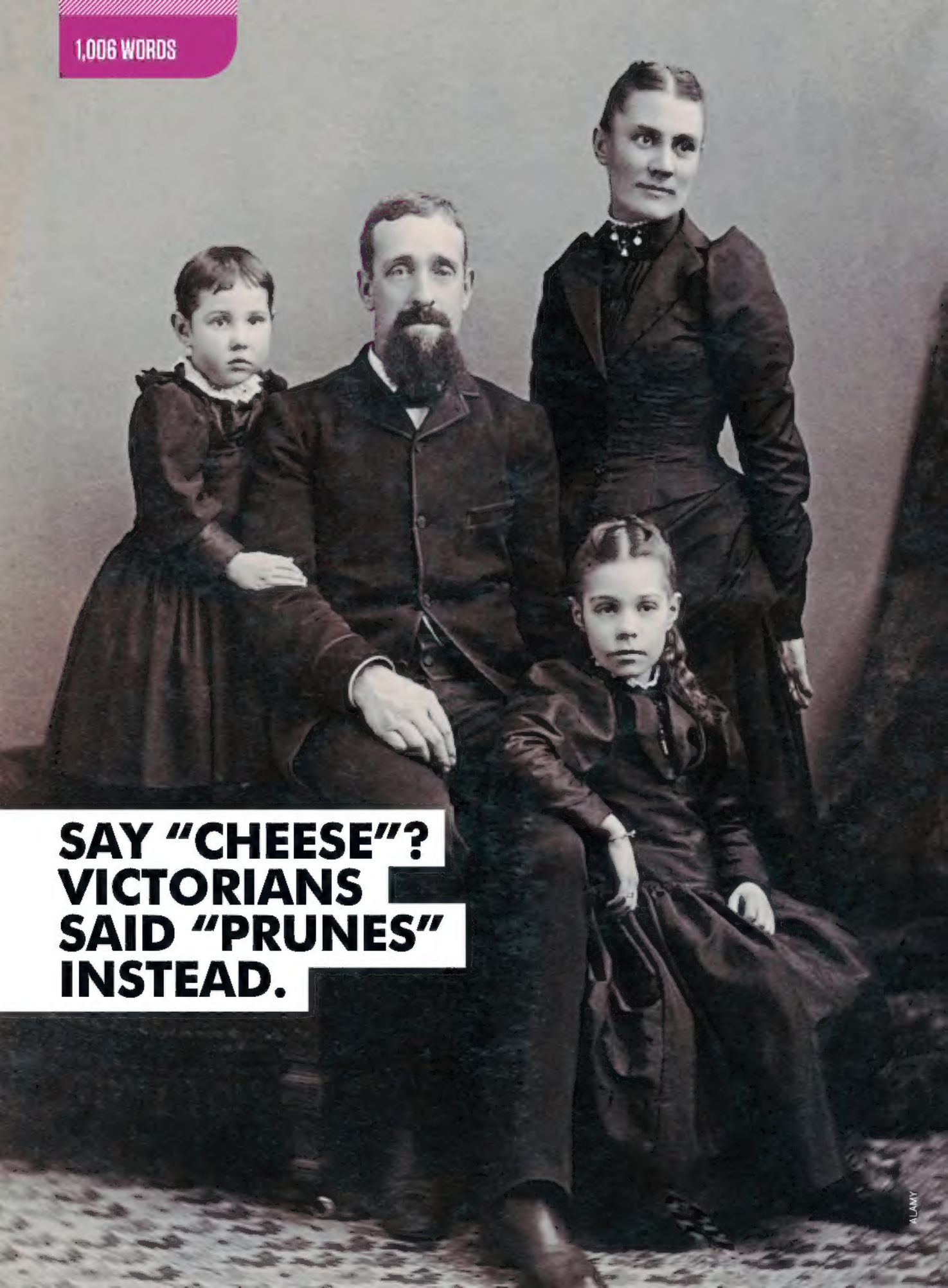
1,006 WORDS



SAY "CHEESE"? VICTORIANS SAID "PRUNES" INSTEAD.

ALAMY

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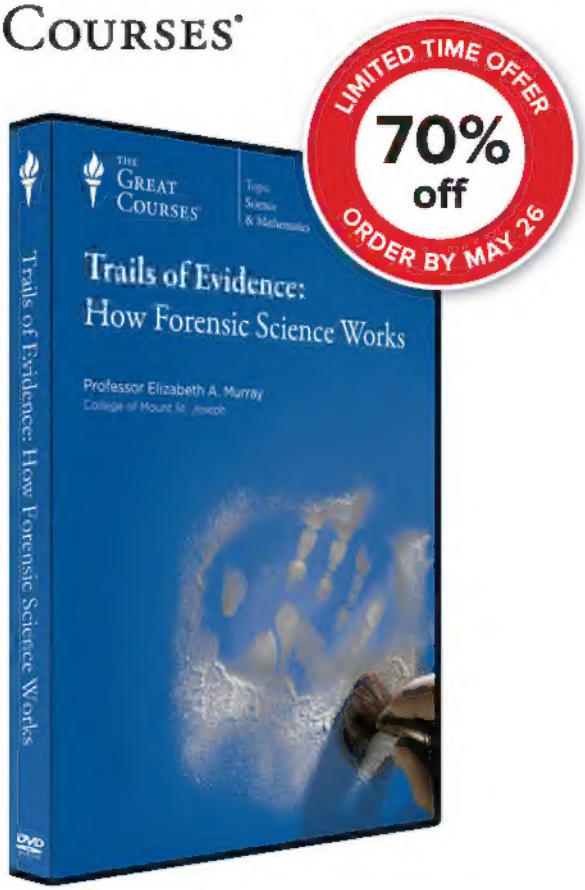

Go Inside the Forensics Lab

Ever wonder how accurate detective dramas are? The truth is, fictional portrayals of crime scene investigations often get it wrong. It's a shame, because knowing how scientists approach cases isn't just fascinating, it can actually help you be a better juror or witness, sharpen your analysis of headline-grabbing crimes, and make you a more critical thinker.

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7. Traces of Hair and Fur
8. Soil, Protist, Plant, and Animal Traces
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10. The Forensic Analysis of DNA
11. Forensic Toxicology of Drugs and Poisons
12. The Forensics of Substance Abuse
13. Handwriting and Forgery Analysis
14. Computer Forensics and Digital Evidence
15. Structure Failure—Forensic Engineering
16. Forensic Analysis of Vehicle Accidents
17. Fire Science and Explosion Forensics
18. Blood Evidence—Stains and Spatters
19. The Science of Death
20. Death Investigation—Algor, Livor, and Rigor
21. Autopsy—Cause and Manner of Death
22. Decomposition—From Bugs to Bones
23. Forensic Anthropology—Skeleton Stories
24. Forensics of Teeth and Bite Marks
25. Police Sketches and Facial Reproductions
26. Interview, Interrogation, Intelligence
27. Forensic Profiling—Who, How, and Why?
28. Human Memory and Eyewitness Accounts
29. Criminal Minds—Psychology and Psychiatry
30. When Forensic Evidence Is on Trial
31. Forensic Scientists and Expert Testimony
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33. Crimes—Nobody's Supposed to Get Hurt
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